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ABSTRACT

The purposes of this study were: (1) to describe the developmental trends in the control of spoken English grammatical constructions produced by Spanish-speaking Mexican-American schoolchildren learning English in the elementary grades, and (2) on the basis of this description to assess the comparative development of English structures in pupils schooled bilingually in English and Spanish and those instructed only in English in a traditional monolingual school program. The principal hypothesis tested was that there would be no significant difference in the development of English grammatical constructions between Spanish-speaking pupils schooled bilingually and those schooled monolingually. It was also hypothesized that if there should be any difference, pupils schooled bilingually would demonstrate greater syntactic development in their spoken English. The subjects were 115 Mexican-American school children in grades K-3. The effects of three independent variables (grade, sex, and treatment) on the production and development of spoken English were assessed. It was found that bilingual schooling had a positive effect on the development of the spoken English of the pupils. The bilingually schooled pupils produced more language overall and more structurally complex units. For both groups, years in school did account for measurable differences in the use of certain English constructions. (Author/LG)

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Technical Report No. 40

THE SPOKEN ENGLISH OF SPANISH-SPEAKING PUPILS IN A BILINGUAL AND MONOLINGUAL SCHOOL SETTING: AN ANALYSIS OF SYNTACTIC DEVELOPMENT

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June 1974

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This technical report is part of the work of the program on Teaching and Linguistic Pluralism. It reproduces the author's doctoral dissertation, submitted to the School of Education, Stanford University, May 1974.

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ABSTRACT

The purposes of this study were (1) to describe the developmental trends in the control of spoken English grammatical constructions produced by Spanish-speaking Mexican-American schoolchildren learning English in the elementary grades, and (2) on the basis of this description to assess the comparative development of English structures in pupils schooled bilingually in English and Spanish and in those instructed only in English in a traditional monolingual school program.

The principal hypothesis tested was that there would be no significant difference in the development of English grammatical constructions between Spanish-speaking pupils schooled bilingually and those schooled monolingually. It was also hypothesized that if there should be any difference, pupils schooled bilingually would demonstrate greater syntactic development in their spoken English.

The subjects were 115 Mexican-American schoolchildren in grades K, 1, 2, and 3. The 58 bilingually schooled pupils were matched with 57 pupils schooled monolingually. Transcripts were made of each pupil's oral responses to a short film. The transcribed language sample was then segmented into T-units--i.e., units consisting of one main clause plus any subordinate clause or structure attached to it.

The effects of three independent variables (Grade, Sex, and Treatment) on the production and development of spoken English were assessed. In order to compare the production of different language constructions, the type of construction (correct or incorrect T-unit, explicit or implicit T-unit, etc.) was treated as a within-subject factor with repeated measures over subjects. Three separate ANOVA's were run with an equal number of subjects in each cell. The results were consistent for most of 11 dependent measures based on the T-unit concept. Grade was a significant source of variance for 8 dependent measures, and the Sex factor was consistent for 9 dependent measures. Orthogonal contrast procedures were used to assess the general effect of Treatment (bilingual or monolingual schooling) on oral English development and to study the production of different types of language constructions in order to gain some understanding of the role of correctness, explicitness, and complexity in the acquisition of English by Spanish-speaking pupils.

One of the most important findings was that bilingual schooling had a positive effect on the development of the spoken English of the pupils. The bilingually schooled pupils produced more language overall

and more structurally complete T-units. On measures related to syntactic complexity, the performance of the bilingually schooled pupils was superior to that of the monolingually schooled pupils by the beginning of grade 2.

For both groups, years in school did account for measurable differences in the use of certain English constructions. The effect of Grade was significant for 8 of the 11 dependent measures. Both groups tended to produce more correct than incorrect T-units, more explicit (structurally complete) than implicit T-units, and more nominal sentence-combining transformations than adverbial and coordinating transformations combined.

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THE SPOKEN ENGLISH OF SPANISH-SPEAKING PUPILS IN A BILINGUAL AND MONOLINGUAL SCHOOL SETTING: AN ANALYSIS OF SYNTACTIC DEVELOPMENT

CHAPTER I

INTRODUCTION

Background of the Problem

In recent years there has been a growing interest in the educational problems of cultural groups who are different from mainstream middle-class America. These cultural groups include Blacks, Mexican-Americans, Puerto Ricans, rural whites, and Native Americans. The exact dimensions of the educational problems of children from these cultural groups are not known, but many of these children have experienced failure in school. Whether these children fail because of their cultural values, low economic status, or the so-called language barrier is not always clear, but schoolmen often cite "language" as the principal cause of school failure.

Mexican-Americans in the Southwest and Puerto Ricans on the East Coast constitute the largest non-English-speaking group in the United States. It is estimated that of the school age population in the Southwest, which includes the states of California, Arizona, Colorado, New Mexico, and Texas, more than one-sixth is Spanish-speaking.[1] In the New York City area nearly one-fourth of the

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[1] Bilingual Education. Hearings Before the Special Subcommittee on Bilingual Education of the Committee on Labor and Public Welfare.

elementary school population is Puerto Rican, according to the 1968 Annual Census of School Population. The school record of both groups is extremely poor; their education problems are in grievous need of solution. Puerto Ricans living in New York City, based on figures from the 1960 U. S. Census, have the most limited formal education of any other identifiable cultural group. Statistics from the New York City Board of Education indicate that only between 10-12 percent of Puerto Ricans are graduated from high school with academic diplomas, and less than three percent enter college.[2]

Statistics relating to the education of Mexican-Americans are equally dismal. The school dropout rate of Mexican-American pupils in the Southwest is one of the highest of any group in the nation. Census figures from 1960 show the adult Mexican-American averaging only 7.1 years of schooling. The median grade attainment in the five Southwestern states ranged from 8.6 years in California to 4.7 years in Texas.

Statement of Problem

One of the typical explanations for the poor performance of the Mexican-American child in school is his "language problem." Carter points out that there "is the widely held belief that many Mexican-American children are essentially alingual, not truly speaking

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Ninetieth Congress, First Session on S. 428. Part I and II, May-July 1967 (Washington, D.C.: Government Printing Office, 1967).

[2]William Labov, "A Sociolinguistic Study of the Puerto Rican Community: A Proposal," mimeo (New York: Columbia University, 1969).

any language."[3] In discussing the language behavior of these children, Holland comments:

> Their typical speech patterns are most often a complex mixture of both languages and seldom exclusively either one or the other. These children then cannot in reality be thought of as fully bilingual, but rather as sub-standard or partial speakers of two languages.[4]

For the most part, the language proficiency of these children, whether it is English or Spanish, is considered deficient. Veteran educators such as Manuel hold the opinion that "most Spanish-speaking children of the Southwest know neither English nor Spanish well," and that the home language is "a poor grade" of Spanish.[5] Some teachers have been known to say that the children's "Spanish is of such an inferior quality that it does not warrant classification as a language," that "the child's Spanish provides a meager base for future learning in even that language," and "that some children had a problem not so much because they spoke Spanish as because they spoke no language at all at home--that is, that they were truly nonverbal and alingual."[6] Thus, the child's "bilingualism, lack of verbal experience in any language,

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[3]Thomas P. Carter, Mexican Americans in School: A History of Educational Neglect (New York: College Entrance Examination Board, 1970), pp. 51-52.

[4]William R. Holland, "Language Barrier as an Educational Problem of Spanish-Speaking Children," Exceptional Children, 27 (September, 1960), p. 48.

[5]Herschel T. Manuel, The Spanish Speaking Children of the Southwest (Austin: University of Texas Press, 1965), p. 117.

[6]Carter, op. cit., pp. 52-53.

inferiority of the local Spanish, or a combination of these factors are seen as predetermining school problems."[7]

Angel and others will argue that it is not reasonable to reduce the problem solely to linguistics because language is only part of a complex set of cultural, social, and economic factors.[8] Yet the fact remains that language is looked upon by many as an important issue. Campbell, for instance, is convinced that any educational program serving the needs of the Mexican-American child must consider the roles that English and Spanish play in the American society. If the Mexican-American child is

> to compete favorably with his Anglo peers, it seems . . . that it is obligatory that he gain a proficiency in English equivalent to that of his Anglo peers. This is true as long as his ultimate success in high school and college depends upon his ability to comprehend and manipulate concrete and abstract concepts presented to him in English. . . . Realistically, we must assume that his eventual academic and professional success is closely correlated to his ability to function in English much the same way as a native speaker of English does.[9]

Since proficiency in English equivalent to that of a native speaker is seen as a prerequisite for academic success, it becomes

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[7] Ibid., p. 53.

[8] Frank Angel, "Social Class or Culture? - A Fundamental Issue in the Education of Culturally Different Students," in The Language Education of Minority Children, ed. by Bernard Spolsky (Rowley, Mass.: Newbury House Publishers, Inc., 1972), pp. 37-47.

[9] Russell N. Campbell, "Bilingual Education for Mexican American Children in California," in Bilingualism in the Southwest, ed. by Paul R. Turner (Tucson, Arizona: The University of Arizona Press, 1973), p. 31.

apparent that one should know more specifically the control of English that Mexican-American children have, especially in the early grades where many of them are acquiring it as a second language.

Purpose of Study

Until recently, the language of Mexican-American children had not been studied systematically. Labels such as "Spanish-speaking," "bilingual," and "non-native speaker of English" have been used to describe the child's command of English. This study proposes (1) to describe the developmental trend in the control of the spoken English grammatical structures of Spanish-speaking Mexican-American school pupils who are learning English as their second language in grades K, 1, 2, and 3 and on the basis of this description, (2) to assess the comparative development of English syntactic complexity between those pupils instructed bilingually in English and Spanish and those instructed only in English in a traditional school program.

With the passage of the Bilingual Education Act in 1967, bilingual instructional programs have been established throughout various cities in the country. In the Southwest, particularly, many bilingual programs have been in operation for several years. These bilingual programs using Spanish, the native language of the child, for instructional purposes and introducing English as a second language have been established with the hope of providing a more humane and enriched school experience for the non-English-speaking child. Advocates of bilingual education stand by the conviction that Spanish-speaking children schooled bilingually can do better than comparable

Spanish-speaking children schooled only in English.

The principal hypothesis to be tested is that there will be no significant difference in the development of English constructions between those Spanish-speaking children exposed to bilingual education and those exposed to traditional, unilingual English instruction in the elementary grades. If there should be any difference, the pupils schooled bilingually should demonstrate greater syntactic development in their speech.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this chapter is to present the types of investigations which have been conducted in an attempt to analyze certain aspects of the speech of Mexican-American children. These studies fall into four general categories: those examining the control of Spanish, those examining the control of English through the use of production and comprehension tasks and error analysis, those examining the degree of bilingualism or control of both languages, and those analyzing the role of code separation and code switching. Because English is not the native language of many Mexican-American children, a brief survey outlining the process of first and second language acquisition is presented.

Spanish

Only a few investigators have studied directly the Spanish of Mexican-American children. Tireman analyzed the vocabulary of four New Mexican pre-school children.[10] Lastra investigated the oral language performance of 42 school children attending grades K-4 in

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[10] L. S. Tierman, Spanish Vocabulary of Four Native Spanish-Speaking Pre-I Children (Albuquerque: University of New Mexico Press, 1948).

Los Angeles, California. A study of various phonological features revealed considerable intrusion of English. The exclusive use of the familiar tú (correspondingly, the absence of the formal personal pronoun usted), lexical borrowing from English, and code switching were noted. She concluded that while most of the children understood standard Mexican Spanish, they spoke a sub-standard or "rural" dialect similar to the Spanish spoken by the lower working class of Mexico.[11]

Gonzalez studied the acquisition of Spanish grammar by conducting a cross-sectional study of a group of middle-class Mexican-American children from the Rio Grande Valley of Texas. Speech samples were gathered and analyzed for three children at each of the following age intervals given in years and months: 2.0, 2.6, 2.6, 2.9, 3.0, 3.6, 4.0, 4.6, and 5.0. The analysis involved an examination of various grammatical areas including the use of distinct syntactic structures, verb tenses, negation, interrogatives, possessives, imperatives, adverbial modification, and sentence complexity. He found that the number of distinct syntactic structures grew from 13 at age 2.0 to 38 at age 4.6. Negation, indicated by "no" plus an affirmative structure, and most verb tenses were established by age 2.6. Adverbial modification was expressed through single-word locative adverbs followed by single-word temporal adverbs. Sentences developed from simple to complex to compound, with the appearance of compound-complex

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[11]Yolanda Lastra, "El habla y la educación de los niños de origin mexicano en Los Angeles." Paper presented at the V Simposio del Programa Interamericano de Lingüística y Enseñanza de Idiomas, Sao Paulo, Brazil, January 9-14, 1969.

last.[12]

In a similar study, Brisk compared the status of Spanish development of a rural and an urban group of five-year-old New Mexican children. She analyzed the language samples in terms of types of syntactic structures, English interference, and dialectal features. A comparison of one of the New Mexican group with a comparable Texan group of children, revealed a different level of syntactic development, thus suggesting possible regional differences in the rate of Spanish language development.[13]

English: Studies on Production

One of the early studies of the English of Spanish-speaking children was conducted by Hughes. She evaluated the English language facility of 64 Mexican-American pupils attending a five-week summer school program in Southern California. Conclusions about the English language proficiency were based on responses to a picture test, records of spontaneous speech, and qualitative judgments of the school staff. While most of the teachers agree that the English was a foreign language to most of the pupils, Hughes explained her findings by comparing their English to the native English proficiency of comparable Anglo children. She points out that the vocabulary of these

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[12]Gustavo Gonzalez, "The Acquisition of Spanish Grammar by Native Spanish Speakers" (Ph.D. dissertation, University of Texas at Austin, 1970).

[13]Maria Estela Brisk, "The Spanish Syntax of the Pre-School Spanish American: The Case of the New Mexican Five-Year Old Children" (Ph.D. dissertation, University of Texas at Austin, 1973).

children was not sufficiently developed because it lacked such common words as "rug," "sheet," and "pail" and that their short sentences lacked relational words and "proper" verb forms. From the picture test she reports that single-word responses accounted for 32.7 percent of the total language production, while structurally complete sentences was 4.8 words. Older children did not show an increase in the production of structurally complete sentences. Age and school attendance did not show a gain in English vocabulary. Sex was found to be significant. Girls used more words than boys in their total responses.[14]

The study by Carrow focused on the linguistic capabilities of two groups of third grade school children, one group of bilingual and the other monolingual with similar socioeconomic status and intelligence. The children included in the bilingual groups had been exposed to Spanish and English languages in the home from birth, and they could communicate in both, but they preferred English at the time of testing. Three tests of reading capacity, a test to evaluate articulatory proficiency for non-readers, and a three minute sample of oral language were used to obtain measures of linguistic functioning for both groups. There was no significant difference between the two groups in the oral language production as measured by the total number of words, the number of different words used, clause length, degree

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[14]Maria Hughes, "The English Language Facility of Mexican American Children Living and Attending School in a Segregated Community" (Ph.D. dissertation, Stanford University, 1952).

of subordination, and complexity of sentence structure. The monolingual group was superior to the bilingual group in oral reading accuracy and comprehension, lexical comprehension, arithmetic reasoning, mechanics of English, and the extent of speaking vocabulary as measured by the number of different words used. Carrow concluded that bilingual children were handicapped in those aspects of the English language related to vocabulary and articulation.[15]

Van Metre analyzed the language variability of two groups of third grade bilinguals, one group having scored low and the other having scored high on a state mandated reading test administered in Arizona in 1972. Using the interview technique developed by Carol Chomsky, the control of four syntactic constructions was investigated. These constructions included (1) interpretation of the words "ask" and "tell" and interpretation of "ask-question" sentences, (2) interpretation of "promise" sentences which violate the general principle of minimal distance for determination of the implicit subject of a complement verb, (3) interpretation syntactically complex sentences in which the underlying relationships are not expressed in the surface structure, and (4) interpretation of restricted pronominal reference to non-identity. Some of the conclusions reached were that the children who scored high on the reading test knew the four syntactic constructions better than those children scoring low.

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[15]Sister Mary Arthur Carrow, "Linguistic Functioning of Bilingual and Monolingual Children," Journal of Speech and Hearing Disorders, 22:3 (September 1957), 371-380.

The hypothesized order of acquisition of three of the structures was substantiated only by those children scoring high on the reading test. The order of acquisition of the syntactic structures was more closely related to individual rate of language development than to age.[16]

Amsden studied the spoken English of 30 pre-school Mexican-American children in the Los Angeles area. Tape recordings of the children's spontaneous speech were made and studied for (1) types of basic structures, (2) complexity, (3) variety, and (4) variation from standard English. The general conclusion was that the language of these children was full of imperatives and interjections but lacked qualifiers and subordination. Using the T-unit measure developed by Hunt to analyze degree of complexity,[17] Amsden found that only one-sixth of the T-units included phrases and only three percent included subordinate clauses. Few adverbial constructions were used, and, while both English and Spanish were acceptable in the school, less than 10 percent of the T-units were in Spanish. Instances of code switching were also found in the speech of these children.[18]

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[16]Patricia Downer Van Metre, "Syntactic Characteristics of Selected Bilingual Children" (Ph.D. dissertation, University of Arizona, 1972).

[17]The T-Unit is the abbreviated label for "minimal terminable unit," which is defined as one main clause plus any subordinate clause or nonclausal structure that is attached to or embedded in it.

[18]Constance E. Amsden, "A Study of the Syntax of the Oral English by Thirty Selected Mexican-American Children Three to Five Years Old in a Preschool Setting" (Ph.D. dissertation, Claremont Graduate School and University Center, 1969).

Jameson, in developing a test of oral English phonemic analysis, studied the language of 157 Spanish-speaking children in pre-school and elementary grades in a number of schools in San Antonio, Texas. She found that the consonants /v, č, š/ in all positions accounted for the greatest number of pronunciation "errors" in sentences which these children imitated. The final consonants /t, p, d, b, k, g, f, v, θ/ and the consonant clusters /-rk, -sk, -sp, and -rvd/ were "mispronounced" between 44 to 93 percent of the time by these pupils. They made less "errors" than was expected when asked to reproduce the vowels of standard American English.[19]

Natalicio and Natalicio tested native Spanish-speaking children (NSS) with native English-speaking children (NES) in grades 1, 2, 3, and 10 for the purpose of determining the pattern of acquisition of noun plurals in English. The pupils were presented a randomized list of nonsense syllables which permitted simulation of nouns in English. The performance of the NSS group at the first and second grades was not significantly different from that of the NES group in terms of the number of correct responses (correct application of noun pluralization rules). However, by grades 3 and 10 the level of performance for the NSS group was significantly inferior to that of the NES group, which showed near-perfect control of noun pluralization rules at both

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[19]Gloria Ruth Jameson, "The Development of a Phonemic Analysis for an Oral English Proficiency Test for Spanish-Speaking School Beginners" (Ph.D. dissertation, University of Texas at Austin, 1967).

grades.[20] The investigators explained the poor performance of the NSS group, particularly at the tenth grade level, by stating that

> most of the NSS Ss probably continue to speak Spanish in their homes throughout their school careers, thus failing to receive continuous school-home linguistic experiences. Further, English spoken in the home and/or the neighborhood may reinforce just those "errors" shown in the data. . . . Another explanation . . . may be found in the schools; it is possible that the emphasis on oral language development characteristic of the first and second grades is gradually replaced by other concerns before the NSS group, owing to its late start in English, has completely mastered plural formation in English.[21]

English: Studies on Comprehension

Carrow compared the comprehension of English and Spanish of a group of 99 pre-school Mexican-American children, ages 3, 10 to 6, 9 living in Houston, Texas. Using her Auditory Test for Language Comprehension, she attempted to determine the developmental sequences of the two languages for this group of children who all came from low socio-economic homes. She found that the children varied widely in the extent they understood the two languages. In general, most of the children understood English better than Spanish. The development of both languages was related to age and environment. English development resulted from the English instruction which the children received at the day care center, and growth in Spanish resulted from the use

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[20]Diana S. Natalicio and Luiz F. S. Natalicio, "A Comparative Study of English Pluralization by Native and Non-Native English Speakers," Child Development, 42 (September-October 1971), 1302-1306.

[21]Ibid., pp. 1305-1306.

of Spanish in the children's homes. In terms of control of specific grammatical items, structures containing pronouns in both languages caused problems. Up to age six less than 60 percent of the children understood the contrast he/she (él/ella), his/her (de él/ de ella). Only the pronoun "they" (ellos) was understood by all of the children. There were also age and individual differences among the children in the degree of control of negatives and tense markers in both languages.[22]

In a later investigation Carrow selected 30 bilingual subjects from the study above and matched them with a comparable group of Anglo-American children on the basis of age and socio-economic status. The study, carried out in Houston, Texas, showed that the monolingual Anglo-American children obtained higher scores than the bilingual children on the Revised Auditory Test for Language Comprehension. Of the 15 language areas sampled by the comprehension test, the monolingual group performed better than the bilingual group in its comprehension of nouns, pronouns, noun pluralization, and noun phrases with two adjective modifiers.[23]

English: Error Analysis

Several studies have analyzed the "errors" in the spoken English of Mexican-American children. A number of recent dissertations

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[22]Elizabeth Carrow, "Comprehension of English and Spanish by Preschool Mexican-American Children," Modern Language Journal, 50:5 (May 1971), 299-306.

[23]Elizabeth Carrow, "Auditory Comprehension of English by Monolingual and Bilingual Preschool Children," Journal of Speech and Hearing Research, 15:2 (June 1972), 407-412.

have examined the errors in English usage of Mexican-American pupils in grades 2, 3, 4, and 5 in 45 public elementary schools throughout the state of Colorado. These dissertations also compared their finding to those of a parallel grade level study from the "Colorado Studies," a series of investigations of errors in the oral English of pupils in Colorado conducted in the early 1960's.

The data for the recent dissertations were collected from informal discussions of six minutes. The selected pupils in grades 2 to 5 were brought together in each of the 45 schools for the six-minute recording session. The tape recordings were transcribed and those usages which deviated from standard American English were classified as "errors." The number of errors, the relative frequency of errors, and the number of errors per 1,000 words were computed. Hicks examined the errors of pupils in the second grade and found a total of 793 errors out of which 61.1 percent were in the verb class, 29.3 percent in the pronoun class, four percent in the adjective or adverb class, .6 percent in the preposition or conjunction class, and five percent in the noun class. Other constructions not classified as errors were tabulated as questionable preposition choices and questionable conjunction choices.[24]

Allred studied the performance of third graders and found a total of 623 errors out of which 54 percent were in the verb class,

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[24]Jerral Robert Hicks, "Error in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade II in the State of Colorado" (Ed.D. dissertation, University of Northern Colorado, 1970).

35 percent in the pronoun class, seven percent in the adjective and adverb class, .3 percent in the conjunction class, and five percent in the noun class.[25]

Roberts found a total of 562 errors among the fourth graders. Of the 323 verb errors, 32.5 percent were in the category of subject-verb disagreement, 36.7 percent incorrect use of tense forms, 11.1 percent incorrect formation of verbs, 8.0 percent wrong use of verbs or verbals, and 11.7 miscellaneous verb errors. Of the 162 pronoun errors, 3.7 percent dealt with incorrect case form use, 46.6 percent lack of agreement with antecedent, 43.5 percent redundant use of pronouns, and 6.2 percent miscellaneous pronoun errors. For the 43 adjective-adverb errors, 53.5 percent resulted from the confusion of adjectives and adverbs, 4.6 percent were comparison errors, 23.3 percent were instances of double negatives, 4.6 percent were article errors, and 14.0 percent were miscellaneous errors. In the category of preposition-conjunction, the use of and for to accounted for nearly all of the errors in this class. There were 21 noun errors and 9.5 percent were cases of incorrect plural formation, 57.1 percent confusion of singular and plural forms, and 33.3 percent were classified as miscellaneous.[26]

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[25]Forrest Rich Allred, "Errors in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade III in the State of Colorado" (Ed.D. dissertation, University of Northern Colorado, 1970).

[26]Neil Alden Roberts, "Errors in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade IV in the State of Colorado" (Ed.D. dissertation, University of Northern Colorado, 1970).

Pauls found a total of 503 errors among the fifth graders. Of the total number of errors, 53.3 percent were in the verb class, 25.6 percent in the pronoun class, 11.7 percent in the adjective-adverb class, 5.6 percent in the noun class, the most frequent error being the use of there was, there is, or there's with a plural noun, and 3.8 percent in the preposition-conjunction class.[27]

Gonzalez analyzed the speech of a group of 30 migrant children from South Texas. The children, ranging in age from six to twelve years, were interviewed during the middle of their first year in school. Each child was asked questions relating to himself and his family and then was asked to answer questions about a set of pictures of people acting in different situations. All of the 30 children were fluent in Spanish and only four of them had no command of English. For the 26 children who spoke English and who were included in the study, 56 different types of deviations from standard American English were noted. These included the general categories of tenses, subject-verb agreement, negation, and mass/count noun distinction. Gonzalez also attempted to establish a hierarchy of grammatical difficulty based on how many of the children produced the item. The list in ascending order of difficulty includes (1) possessive adjectives, (2) subject-verb agreement, (3) other, (4) subject pronoun use, and (5) tense formation. Category 3 (other) was

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[27] Leo Wayne Pauls, "Errors in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade V in the State of Colorado" (Ed.D. dissertation, University of Northern Colorado, 1970).

the only one of the five that could be related to Spanish interference. Category 3 included the lexical substitution of wash for brush, card for letter, see for look at, and for in place of so. This category also included the adaptation of Spanish words by applying English phonological rules or by adding an English affix to the Spanish base form. Among the examples was the use of seck and hick (from Spanish secar and hija) used for English dry and daughter, respectively. The -ing affix for the English progressive was added to seck as well as to mirar (to look) and leer (to read):

He's secking the car.

A mother and a sister is miring in the mirror.

They're leying a story.

Gonzalez raised a number of issues concerning his general findings and has suggested additional research to answer these questions: What characterizes the English of migrant Mexican-American children from that of non-migrant children? What similarities exist between Mexican-American migrant English and Black English? To what extent do local dialects of English and Spanish influence the lexical substitution that a child makes in acquiring English?[28]

Bilingualism

A few studies exist which have attempted to assess the degree of control of both English and Spanish. Peña conducted an experimental

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[28]Gustavo Gonzalez, "Some Observations on the Speech of Migrant Children in Texas," Center for Applied Linguistics, Arlington, Virginia, July 1973. (Unpublished manuscript.)

study designed to measure the use by first-grade Spanish-speaking pupils of six basic sentence patterns and five basic transformations for both English and Spanish based on The Grammatical Structures of English and Spanish by Stockwell, Bowen, and Martin.[29] One of the major goals of this study was to establish the status of the six basic sentence patterns and five basic transformations for both English and Spanish in the oral language production of the subjects at the beginning and at the end of the first grade under four different instructional conditions. The 88 subjects in the study were selected randomly and assigned to one of four treatments: group one received intensive oral instruction in Spanish, group two received intensive oral instruction in English--both groups using science-based materials for one hour a day--group three receiving no intensive oral instruction in either language but using science-based materials, and group four following the regular school program as prescribed by the San Antonio Independent School District. The findings indicated no significant differences in the language used by the four groups at the end of one year of schooling. There were, however, individual differences within each of the groups in the degree of control of the basic sentence patterns and transformations in both languages.[30]

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[29]Robert P. Stockwell, J. Donald Brown, and John W. Martin, The Grammatical Structures of English and Spanish (Chicago: University of Chicago Press, 1965).

[30]Albar Antonio Peña, "A Comparative Study of Selected Syntactical Structures of the Oral Languages Status in Spanish and English of Disadvantaged First-Grade Spanish-Speaking Children" (Ph.D. dissertation, University of Texas at Austin, 1967).

Cornejo analyzed the lexicon of the five-year-old Spanish-speaking children in Texas. Twenty-four subjects were selected out of a group of 100 children who had been interviewed in English and Spanish and who came from four different types of Texas communities: border-urban, border-rural, interior-urban, and interior-rural.[31]

Some of the general findings based on the preliminary analysis of the recorded speech samples of these children are summarized below:[32]

1. English is the dominant language. The majority of the children expressed themselves better in English than in Spanish. Whenever they were asked a question in Spanish which they could not answer in that language they would automatically switch to English. . . .

2. Spanish is used at home, but Spanish structure and phonology are influenced by English. Examples of this phenomenon are the hundreds of phrases where English structural or lexical segments were used in sentences uttered while speaking Spanish. . . .

3. In extemporaneous conversations with the children and their parents, the investigators noticed a systematic pattern in their language domain. The parents would speak Spanish among themselves, using a few English terms in their conversation; the children would usually speak English among themselves; the parents almost always addressed the children in Spanish and the children would answer in English, mixing a few Spanish terms in their speech.

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[31] Ricardo J. Cornejo, "The Acquisition of Lexicon in the Speech of Bilingual Children," in Bilingualism in the Southwest, ed. by Paul R. Turner (Tucson, Arizona: The University of Arizona Press, 1973), pp. 67-93.

[32] Ibid., pp. 88-89.

4. There is significant interference from English to Spanish . . . the Spanish language of both parents and children was always influenced by English, whereas the English of the children was more fluent and showed fewer instances of interference. English interference occurs at all levels of the speech of the children, being more preponderant at the lexical level.

5. Interference from Spanish to English is highly significant at the phonological level; it is minor at the lexical and grammatical levels. . . . The English phonology of the children showed a high degree of Spanish influence. The most relevant aspects of this influence were the many instances of reduction of consonant clusters, shifting of primary stress, phonemic alternation, devoicing of consonants, and glide simplification.

Martínez-Bernal conducted an experimental study designed to investigate the simultaneous acquisition of English and Spanish of a group of Mexican-American children five to eight years of age from Tucson, Arizona. The study focused on the acquisition of the morphological systems of English and Spanish and of noun phrases of varying degrees of length and complexity in both languages. The children's responses were cued with verbal and pictorial stimuli, and, for the morphological section of the test, real and imaginary word items were used. The results showed that the absence of English in the home significantly lowered the performance on the English portion of the test, while the use of both languages in the home did not significantly affect performance in Spanish. The order of acquisition of the linguistic forms in either language did not differ significantly from the sequence of acquisition observed for monolingual speakers of each language. Age was not significantly related to performance. In terms

of the sex factor, girls did significantly better than boys on Spanish morphology, and boys did significantly better than girls on English morphology. The sex factor, however, did not affect the acquisition of noun phrases. Interlingual interference was found to be present in 2.7 percent of all responses, 2.5 percent of all the responses, 2.5 percent being Spanish interference in the English and 2.9 percent English interference in the Spanish. The general conclusion was that neither English nor Spanish was a "second" language for these children. They appeared to be acquiring both languages in substantially the same way as monolingual children acquiring English or Spanish as their native language.[33]

Code Switching and Code Separation

Code switching and code separation are two important aspects of bilingual performance. To an extent, both terms describe the linguistic behavior of a bilingual, particularly his ability to keep his two languages apart or his ability to switch from one language to the other in a specific speech situation.

The language of Mexican-American children in the Southwest is often seen as a mixture of English and Spanish or as a random intermingling of words and phrases from both languages. Weinreich's ideal bilingual would not switch from one language to the other except for "appropriate changes in the speech situation (interlocutors, topics,

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[33]Janet Ayers Martinez-Bernal, "Children's Acquisition of Spanish and English Morphological Systems and Noun Phrases" (Ph.D. dissertation, Georgetown University, 1972).

etc.), but not in an unchanged speech situation, and certainly not within a single sentence."[34] The degree of bilingualism among Mexican-American children varies considerably. Some children might have equal control of both languages, and theoretically they might approach the verbal behavior of Weinreich's ideal bilingual, but the majority of Mexican-American children have a proficiency in English and Spanish which fall on a continuum ranging from no knowledge to complete control.

Code switching or failure to keep the two languages separate may be a function of language dominance. The Spanish-dominant child, when asked to perform in English, might resort to code switching (borrow from Spanish) to complete his linguistic transaction. The opposite would probably be true for the English-dominant child when asked to perform in Spanish. Lance observed this phenomenon when he studied the language behavior of three generations of one family in Texas. He found that the grandparents had minimal command of English, the second generation about equal command of both languages, with a slightly greater control of English, and the children with a limited command of Spanish. Lance has suggested that

> . . . language dominance can be seen most clearly in the relative amount of English and Spanish used when a bilingual speaker freely switches from one language to another in relaxed conversations.[35]

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[34] Uriel Weinreich, Languages in Contact (The Hague: Mouton & Company, N.V., Publisher, 1968), p. 73.

[35] Donald M. Lance, "The Code of the Spanish-English Bilingual," TESOL, 4:4 (December 1970), 347.

When interviewed in Spanish, members of the second generation, who included the hostess, her husband, and a neighbor, switched to English less--four percent, one percent, and three percent, respectively--when compared to the three children, who lapsed into English four percent, 30 percent, and 42 percent.[36]

Certain instances of code switching are viewed by some researchers as examples of stylistic changes or metaphorical switches, not as "a breakdown in the ability to maintain the language apart but rather a complex ability commanded by some bilinguals which reflects the intricate sociocultural situation of language contact."[37] For example, the use of Spanish in those from Mexico, que tienen chamaquitos (who have little children), according to Gumperz and Hernandez, serves "to emphasize the ethnic identity of the referent."[38] The switch in

> With each other. La senora trabaja en la caneria
> orita, you know. [The Mother works in the cannery.]

"signals the relative confidentiality or privateness of the message."[39]

In terms of language learning, code separation is an important

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[36] Ibid.

[37] Eduardo Hernandez-Chavez, et al., eds., El Lenguaje de los Chicanos: Regional and Social Characteristics of the Languages Used by Mexican Americans (Arlington, Va.: Center of Applied Linguistics, forthcoming), p. 17.

[38] John Gumperz and Eduardo Hernandez-Chavez, "Bilingualism, Bidialectalism, and Classroom Interaction," in Language in Social Groups by John Gumperz (Stanford, Ca.: Stanford University Press, 1971), p. 325.

[39] Ibid.

linguistic consideration, especially for those children who are monolingual in Spanish and do not come into direct contact with English until they enter school. The degree of code separation in these children may serve to indicate the process involved in becoming a bilingual.

In studying the acquisition of English of three Spanish-speaking pre-schoolers, Hernandez was able to observe the degree of code separation in the utterances these children produced. For the most part, these children were able to sort out from the very beginning the elements and the rules of each language, thus keeping both codes separate. Utterances like there a big cat, a yellow brick, and the little girl putting her coat indicate the use of English rule of adjective placement before the noun. While negation was expressed by the use of no before the verb as in Spanish and without the use of English do support, Hernandez argues that the generation of such utterances as that one no broke and I have no have it should not necessarily be explained by Spanish grammar rules because "there are many examples in the literature on English speaking monolingual children which show just such an early development of the negative."[40] Hernandez's findings give support to the hypothesis "that once children acquire a consciousness that they are receiving imput from two languages, the distinction becomes for them paramount and absolute."[41]

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[40] Eduardo Hernandez-Chavez, "Early Code Separation in the Acquisition of English by Spanish Speaking Children." Paper presented at Stanford Child Language Research Forum, March 1972, p. 10.

[41] Ibid., p. 12.

First and Second Language Acquisition

Any study attempting to outline the developmental process by which Mexican-American children acquire English or Spanish should take into account the general process by which first and second languages are learned. As mentioned before, one of the major problems in assessing the language proficiency of the Mexican-American child is establishing his control of English and Spanish. For a number of these children, Spanish is the first language, and English is learned as a second language, usually upon entry into school. For others, English might be a semi-second language because Spanish is used to communicate with parents and other adults in the community and English is used to communicate with siblings and peers. For a few others, English is the first language and receptive skills in Spanish might develop because of interaction with a bilingual environment.

First Language Acquisition

Recent studies of first-language development show that the language produced by children is highly structured. Utterances produced by native English-speaking children such as Billy go, no play, and where baby? are not the result of imitating adult speech. While these structures deviate from acceptable English, they are generated by the application of grammatical rules which the child changes and refines as he progresses to the adult model.

Language acquisition is often viewed as a series of stages

> . . . in which certain utterances may be observed and described in terms of grammatical rules. The

> practice of setting up stages, however, implies a fixed period of learning with a sharp clearly defined beginning and end, and can therefore be misleading. In effect, language development may be viewed as a continuum which suggests a gradual process with new structures appearing as a result of a great many factors, many of which are still not clearly understood. The practice of setting up stages for language acquisition can be useful if we use them only as guidelines to which the learning of various grammatical rules may be related.[42]

Dato outlines language development according to the following stages:[43]

1. babbling and other pre-linguistic vocalizations
2. meaningful speech: one-word utterances
3. pivot-like constructions
4. early sentences
5. transformations

These stages can be observed in the development of declarative, negative, and question sentences, as illustrated by Menyuk:[44]

	A Early	B In Between	C Later
Declarative	That box Big boat Rick go	That's box That big boat Rick going	That's a box That's a big boat Rick is going
Negative	No play No a book No fall down	I no play That not book (a) I not falling down (b) I'm not fall down	I won't play That's not a book I'm not falling down

[42] Daniel P. Dato, Research Handbook on Children's Language Learning. Preliminary edition. (Washington, D.C.: U. S. Office of Education, 1971), p. 10.

[43] Ibid.

[44] Paula Menyuk, The Acquisition and Development of Language (Englewood Cliffs, N.J. Prentice-Hall, Inc., 1971), p. 106.

	A Early	B In Between	C Later
Question	See shoe? Truck here? Where baby?	Mommy see shoe? Truck's here? (a) Where baby is? (b) Where's baby is?	Do you see the shoe? Is the truck here? Where's the baby?

Manyuk's Type A constructions, corresponding to Dato's pivot-like, two-word structures, convey the meaning of declaration, negation, and question. Type B construction, referred to as "early sentences" by Dato, show the use of the basic English subject-predicate order. The verb phrase is expanded to include the copula ("that box" becomes "that's box," "where baby?" becomes "where's the baby?" and "truck here" becomes "truck's here") and the use of inflections, such as in the present participle ending ("Rick going" and "I not falling down"). Type C constructions are well-formed sentences and require the use of operational changes or transformations on the basic structure. Transformations account for attaching the negative element to the modal will ("I will not play" becomes "I won't play"), deleting the final copula in the Wh question "Where's the baby is?" resulting in "Where's the baby?", and inverting the copula in the sentence "The truck is there" through the use of the question transformation to produce "Is the truck there?"

Another important aspect of first-language acquisition is the role of "errors." For example, the omission of functors (articles, prepositions, and morphological endings) occurs systematically and seems to comprise an invariant order of appearance. Brown found in

his five-year longitudinal study that fourteen functors were acquired in the same invariant sequence by three children acquiring English as a first language.[45] The same invariant order of acquisition for those functors was found by Jill and Peter de Villiers in their recent cross-sectional study involving 21 children, 16 to 40 months.[46]

Studies by Bloom,[47] C. Chomsky,[48] and Hatch[49] support the findings of Brown and de Villiers mentioned above because children all seem to acquire syntactic structures in an invariant sequence. The similarities which appear among those children acquiring English can also be found across children learning such diverse languages as Russian, Luo, Samoan, and Finnish.[50]

Most of the research concerned with first-language acquisition focuses on the early stages of language development. The few studies

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[45]Roger Brown, A First Language (Cambridge, Mass.: Harvard University Press, 1973).

[46]Jill G. de Villiers and Peter A. de Villiers, "A Cross-Sectional Study of the Acquisition of Grammatical Morphemes in Child Speech," Journal of Psycholinguistic Research, 2:3 (July 1973), 267-278.

[47]Lois M. Bloom, Language Development: Form and Function in Grammar (Cambridge, Mass.: M.I.T. Press, 1970).

[48]Carol Chomsky, The Acquisition of Syntax in Children 5 to 10 (Cambridge, Mass.: M.I.T. Press, 1969).

[49]Evelyn Hatch, Four Experimental Studies of Syntax in Young Children (Inglewood, Ca.: Southwestern Regional Laboratory for Research and Development, October 1969).

[50]Dan I. Slobin, "Universal of Grammatical Development in Children," in Advances in Psycholinguistics, ed. by G. B. Flores d'Arcais and W. J. M. Levelt (New York: American Elsevier, 1970), pp. 174-184.

which have attempted to assess the linguistic competence of older children show that the acquisition of the more complex and subtle aspects of language continue well into the school years. Koziol, in studying the development of noun plural rules among elementary school children, found that most of the children in the first grade had only a receptive control of English noun pluralization rules. Productive control of some of the rules was not achieved until the third grade.[51]

Carol Chomsky tested a group of children ages 5 to 10 on their ability to relate deep and surface structure. They were asked to interpret sentences like (1) John is eager to see and (2) John is easy to see which followed or violated the Minimal Distance Principle (MDP): the subject of the complement verb (a verb with to) is the noun phrase most closely preceding it. She hypothesized that children would first learn the MDP as in sentence (1) and then any exceptions such as sentence (2) in which John (subject) is not seeing but being seen.[52] She found, for example, that structures like John is easy to see, and John promised Bill to go were "acquired between the ages 5, 6 and 9, and . . . known by all children 9 and over" while John asked Bill what to do was "imperfectly learned by some children even at age 10. . . ."[53]

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[51]Stephen M. Koziol, Jr., "An Analysis of the Development of Noun Plural Rules in the Primary Grades" (Ph.D. dissertation, Stanford University, 1970).

[52]Carol Chomsky, op. cit.

[53]Ibid., p. 120.

Second Language Acquisition

Recent studies on second-language acquisition seem to indicate "that the processes of native-language acquisition and second-or-foreign-language learning are essentially analogous."[54] Research on the learning of English as a second language supports the hypothesis that the order of appearance of certain syntactic structures is similar to corresponding syntactic development among children acquiring English as a first language. This has been shown for the acquisition of wh- questions[55] and yes-no questions by a Norwegian child,[56] negation by a Japanese child,[57] and plural formation by Spanish-speaking children.[58]

Studies by Huang,[59] Dulay and Burt,[60] Politzer and Ramirez[61]

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[54]G. Richard Tucker and Alison d'Anglejan, "Language Learning Processes," in Britannica Review of Foreign Language Education, ed. by Dale L. Lange (Chicago: Encyclopaedia Brittanica, Inc., 1971), p. 167.

[55]Roar Raven, "The Development of Wh-Questions in First and Second Language Learners," in Occasional Papers (Colchester, England: University of Essex, Language Center, December 1970).

[56]Roar Raven, "Language Acquisition in a Second Language Environment," International Review of Applied Linguistics, 6:2 (May 1968), 175-185.

[57]J. Milon, "A Japanese Child Learns English." Paper presented at the TESOL Convention, Washington, D.C., March 1972.

[58]Natalicio and Natalicio, op. cit.

[59]J. S. P. Huang, "A Chinese Child's Acquisition of English Syntax" (M.A. Thesis, University of California at Los Angeles, 1971).

[60]Heidi C. Dulay and Marina K. Burt, "Goofing: An Indicator of Children's Second Language Learning Strategies," Language Learning, 22:2 (December 1972), 235-252.

[61]Robert L. Politzer and Arnulfo G. Ramirez, "An Error Analysis

in the learning of English as a second language show that some of the errors which children make do not always reflect interference from the mother tongue, but are similar to those of native English speaking children. Dulay and Burt view the errors of second language learners as specific types of language learning strategies.[62]

Factors Affecting Second Language Acquisition

The existence of systematic patterning in the speech of second-language learners and the types of errors (language learning strategies) suggest great similarities between first- and second-language acquisition. However, there are a number of variables affecting second language acquisition. Generally, second-language learners are older and thus more sophisticated with respect to cognitive conceptual development. The second language learner would attempt to express more complex and perhaps longer sentences earlier than the first language learner because of his longer memory span, his ability to organize, and his wider range of semantic concepts.

The process of second-language acquisition is more efficient than that of first language. Dato found that English speaking children learning Spanish as a second language by being exposed to the language between 10 to 12 months in Madrid "demonstrated the competence that is not normally acquired in the same length of time by children

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of the Spoken English of Mexican-American Pupils in a Bilingual School and a Monolingual School," Language Learning, 23:1 (June 1973), 39-61.

[62]Dulay and Burt, op. cit.

learning their native language."[63]

In addition to the age (maturation) variable, there are a number of interactive factors involved in second language learning. According to Tucker and d'Anglejan, "successful second-language learning results from the interaction among individual (or learner), instructional, and sociocultural factors."[64]

Two important factors accounting for variation in levels of proficiency attained by second language learners are

> (1) aptitude and intellectual potential (e.g., a language-related measure such as IQ or the ability to perceive), and (2) attitudes and motivational orientation toward the other group and their culture (e.g., and interest in sociocultural phenomena apart from the language).[65]

Richards is convinced that language learning, particularly by immigrants or minority groups, is not so much a question of language teaching methodologies but a function of the social structure. He argues that "nobody can be expected to learn the language of a social group if at the same time he is denied the means by which he can become a member of that group."[66] The German-Americans, unlike the Puerto Rican immigrants, "do not live in ghettoes," "learn English easily and well," and, "although a certain amount of German interference

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[63] Dato, op. cit., p. 31.

[64] Tucker and d'Anglejan, op. cit., p. 170.

[65] Ibid.

[66] Jack Richards, "Social Aspects of Language Learning." Paper presented at the TESOL Convention, Washington, D.C., March 1972, p. 16.

is present in their English, it results in no obvious social discrimination."[67] The case of the Puerto Ricans illustrates to a certain extent the forces of economic and social segregation affecting "both the process and the product of language learning."[68] In the Puerto Rican community in New York City,

> . . . bilinguals interact and communicate with each other, using both languages, far more frequently than they interact and communicate with members of the surrounding monolingual community. In such a community, speakers generate their own bilingual norms of correctness which may differ from the monolingual norms, particularly when there is a lack of reinforcement for these monolingual norms.[69]

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[68] Ibid., p. 15.

[69] Roxana Ma and Eleanor Herasimchuk, "Linguistic Dimensions of a Bilingual Neighborhood" in Bilingualism in the Barrio, ed. by Joshua A. Fishman, et al. (Washington, D.C.: U. S. Office of Education, 1968), p. 644.

CHAPTER III

METHODS AND PROCEDURES

Research Design

The principal intent of this study was (1) to describe the developmental trend in the control of spoken English constructions of Spanish-speaking Mexican-American school pupils who were learning English as a second language in grades K, 1, 2, and 3 and on the basis of that description, (2) to assess the comparative development of English structures between those pupils who were schooled bilingually in English and Spanish and those instructed only in English in a traditional school program.

Redwood City, California, thirty miles south of San Francisco, was the site selected for the present study. The school district offered the opportunity to study the spoken English of Spanish-speaking children schooled bilingually and monolingually. The bilingual program, which had been in operation since the fall of 1969 under the auspices of the ESEA Bilingual Education Program, Title VII, allowed for the collection of language samples of Spanish-speaking Mexican-American pupils in grades K, 1, 2, and 3 since the data were gathered during February, 1972.

This study was cross-sectional in nature. At the time of data collection, the pupils who were in grade 3 of the bilingual

school had received three years of bilingual instruction, beginning in grade 1; those in grade 2 had two years, beginning in grade 1; those in grade 1 had two years, beginning in kindergarten; those in kindergarten had six months.

The basic model of bilingual instruction adopted for use was that of partial bilingualism, which seeks fluency and literacy in both mother tongue and second language, but restricts literacy in the mother tongue to such subjects as social studies. However, as Cohen pointed out in his dissertation studying the sociolinguistic implications of bilingual schooling for the subjects in this study,

> In actual practice, those Mexican Americans who . . . were unable to follow math and science classes in English . . . attended classes in Spanish in the Mexican room while the others were taught these subjects in English in the other room. This arrangement was consistent with the partial bilingualism model, which opted for English instruction in certain subjects, namely math and science, at the earliest possible time.[70]

Subjects in the Study

All of the subjects in this study were Spanish-speaking Mexican-American children who lived in a low-rent section of Redwood City. The pupils receiving bilingual instruction attended Garfield School, and those receiving monolingual education attended a nearby school, a distance of ten blocks. The distribution of the subjects according to the type of schooling, grade, and sex, is indicated by Table 1.

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[70]Andrew D. Cohen, "Innovative Education for La Raza: A Sociolinguistic Assessment of a Bilingual Education Program in California" (Ph.D. dissertation, Stanford California, 1972), p. 85.

Table 1

Distribution of Subjects

	Bilingual Schooling			Monolingual Schooling		
Grade	Male	Female	Total	Male	Female	Total
K	3	10	13	11	8	19
1	11	4	15	6	8	14
2	9	6	15	9	6	15
3	10	5	15	5	4	9
Total	33	25	58	31	26	57

The subjects in this study were not randomly selected. With the exception of the subjects in kindergarten, all of the other subjects in grades 1, 2, and 3 in both bilingual and monolingual school programs had been included in a two-year longitudinal study by Cohen.[71] For these subjects, a number of test scores were available and were used in the present study for the purpose of establishing the comparability between those pupils schooled bilingually and those schooled monolingually. The pupils in kindergarten, for whom no test scores were available from Cohen's data, were selected in November 1971 on the basis of teachers' evaluations and information from the school

[71] Ibid.

records about the pupils' home background. The pupils from the kindergarten level were also given the Verbal and Nonverbal Sections of the Inter-American Test of General Ability. Those pupils who could not perform on the Verbal Section in Spanish were not included in the study, since the main purpose of this study was to examine the language development of Spanish-speaking children learning English as a second language.

There was no significant difference between those pupils schooled bilingually (BL) and those schooled monolingually (ML) in terms of age ($F=1.91$, df 1/64). The mean age in months for the BL group was 87.08, and, for the ML group, it was 89.83. Table 2 indicates the mean age in months for the two groups and the four grade levels.

Table 2

Means for the Ages in Months of Spanish-Speaking Pupils Schooled Bilingually and Monolingually According to Grade

Type of Schooling	Grade				
	K	1	2	3	$\bar{X}$
Bilingual	66.67	78.67	95.00	108.00	87.08
Monolingual	67.67	85.00	100.89	106.11	89.83
$\bar{X}$	67.17	81.83	97.94	107.06	

There were no significant differences at each of the four grade levels between the BL and ML groups on their performance on various test measures which were used as control variables, as can be seen in Table 3. The control variables used to compare the BL and ML groups in grades 1, 2, and 3 were scores on pre-test measures which were obtained from Cohen's two-year longitudinal study. The number and the type of pre-test scores available differed for each grade level. A specific description of each test and subtest is given in Appendix A.

Procedures for Collecting Language Samples

The language samples on which this study is based consisted of pupils' oral responses in English to a short, eight-minute film presenting an animated cartoon of "The Ant and the Dove," one of Aesop's fables. The film was presented with the sound turned off so that the narrator's language would not influence the speech elicited from the pupils. The film was viewed by four pupils at a time. Immediately after seeing the film, each child was asked to tell the story privately to one of the four interviewers. Each interviewer followed the same procedure as outlined in Appendix B. A cassette tape recorder was used by each interviewer to record the pupil's oral response.

Analysis of the Language Samples

Typescripts were made for the oral responses of each pupil. The transcriptions made for each pupil included all contractions,

Table 3

Control Variables Used to Establish the Comparability of the Two Treatment Groups

Description	Month/Year	Mean Scores					
		Bilingual	Monolingual	Treatment	Error	df	F
Kindergarten (N=24)							
Inter-Amer. Test of Gen. Ability							
Verbal	Nov. 1971	30.50	29.75	3.38	15.42	1,22	.22
Nonverbal	Nov. 1971	33.17	30.33	48.17	19.29	1,22	2.50
Total	Nov. 1971	63.67	60.25	70.04	57.41	1,22	1.22
First Grade (N=22)							
Murphy Durrell Read. Readiness							
Phoneme	Oct. 1971	26.45	28.27	18.18	144.45	1,20	.13
Letter Naming	Oct. 1971	25.00	22.55	33.13	238.34	1,20	.15
Learning Rate	Oct. 1971	8.18	8.09	.05	16.03	1,20	.00
Total	Oct. 1971	56.18	58.91	122.91	757.63	1,20	.16
Inter-Amer. Test of Gen. Ability							
Nonverbal	Oct. 1971	15.00	17.82	43.68	35.38	1,20	1.23

Table 3 (Continued)

Description	Month/Year	Mean Scores		Treatment	Error	df	F
		Bilingual	Monolingual				
Second Grade (N=26)							
Murphy Durrell Read. Readiness							
Phoneme	Oct. 1970	41.85	46.46	138.46	171.12	1,24	.81
Letter Naming	Oct. 1970	46.15	52.08	228.04	182.61	1,24	1.25
Learning Rate	Oct. 1970	14.92	21.38	271.38	295.17	1,24	.92
Total	Oct. 1970	102.92	119.92	33,194.31	3.,096.04	1,24	1.07
Inter-Amer. Test of Gen. Ability							
Nonverbal	Oct. 1970	19.92	20.54	2.46	22.51	1,24	.11
English Oral Comprehension	Feb. 1971	32.88	35.63	30.25	8.77	1,24	3.45
Coop. Math	May 1971	133.85	126.69	332.65	747.44	1,24	.45
Third Grade (N=18)							
English Oral Comprehension	Feb. 1971	36.80	37.40	2.70	7.64	1,16	.35
Inter-Amer. Test of Gen. Ability							
Nonverbal	Apr. 1971	22.00	21.00	3.00	15.00	1,16	.20
Coop. Math	May 1971	142.20	145.33	73.63	60.70	1,16	1.21
Inter-Amer. Reading							
English Vocabulary	May 1971	28.93	34.07	197.63	60.42	1,16	3.27
Comprehension	May 1971	24.27	30.07	252.30	96.28	1,16	2.62
Total	May 1971	53.20	64.13	896.53	258.79	1,16	3.46

audible pauses, false starts, and redundancies. No attempt was made to punctuate the written representation of the pupil's oral English. Similarly, no attempt was made to evaluate word choice, organization of discourse, or rhetorical effectiveness. False starts (usually transcribed as "uh") and word tangles such as "The ant was collecting cookies an' (an' an' putting in) was putting them in a hole." were classified as "mazes" on the linguistic worksheet (see Appendix C) and were not included in the main analysis.

The T-Unit Measure

Once the false starts and mazes were eliminated by setting them off with brackets, the main syntactic analysis began, using the "minimal terminable unit" or "T-Unit" developed by Hunt.[72]

The T-Unit is defined as one main clause plus any subordinate clause or nonclausal structure attached to it. The T-Unit, then, is equivalent to a simple or complex sentence, but a compound sentence would be regarded as composed of two or more T-Units. An and or but between two main clauses would always go with the second clause, beginning it just as coordinating conjunctions often begin the sentences of mature writers.

The T-Unit measure was initially developed by Hunt for his study of the written English of pupils in grades 4, 8, and 12. He found that the length of the T-Unit (mean number of words per T-Unit)

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[72]Kellogg W. Hunt, Grammatical Structures Written at Three Grade Levels (Champaign, Ill.: National Council of Teachers of English, 1965).

was a statistically better indicator of maturity in writing "than the subordinator ratio, length of clauses or length of sentence."[73]

There are a number of recent studies which have used the T-Unit analysis to measure syntactic development. O'Donnel, Griffin, and Norris used the T-Unit to study the syntactic growth in both the speech and writing of kindergarten and elementary schoolchildren. They also investigated the number of sentences combining transformations (SCT), classified under the headings of nominal, adverbial, and coordinate constructions, within T-Units. They noted that an increase or decrease in the ratio of SCT to the number of T-Units provided useful information about particular aspects of language development among school children.[74]

The T-Unit analysis has also been utilized by researchers investigating second-language development. Thornhill used the measure to study the English development of four Spanish-speaking students attending community junior college and living with American families in Florida. He concluded that the length of the T-Unit and the ratio of SCT to the number of T-Units were valid measures for assessing the developmental patterns in the control of English syntax by second-language learners.[75] Amsden, as cited previously in the

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[73] Ibid., p. 23.

[74] Roy C. O'Donnell, William J. Griffin, and Raymond C. Norris, Syntax of Kindergarten and Elementary School Children: A Transformational Analysis (Champaign, Ill.: National Council of Teachers of English, 1967).

[75] D. E. Thornhill, "A Quantitative Analysis of the Development

review of the literature chapter,[76] studied the syntax of the oral English used by a group of pre-school Mexican-American children, ages 3 to 5. More recently, the T-Unit measure has been employed by Ross to examine the syntax of written Black English of pupils in grades 4, 5, and 6, attending elementary schools in the Los Angeles area.[77]

Main Analysis

The transcriptions of the children's spoken English were analyzed according to seven general headings:

1. Total Number of Words. With false starts and mazes eliminated, a word count of each individual set of responses was made. Conventional word division as represented in dictionary entries was considered. Contractions such as "she'd" and "wasn't" were regarded as two words, and compound nouns were counted according to the number of bases involved.
2. Number of Words per T-Unit. Each transcribed language sample was segmented into T-units. A ratio of the number of words per T-unit was calculated by dividing the total number of words by the total number of T-units.
3. Number of Sentence-Combining Transformations (SCT) per

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of Syntactical Fluency of Four Young Adult Spanish Speakers Learning English" (Ph.D. dissertation, Florida State University, 1969).

[76]See Chapter II, p. 12.

[77]Stephen B. Ross, "On the Syntax of Written Black English," TESOL, 5:2 (June 1971), 115-122.

T-unit. Each T-unit was analyzed in terms of the number and type of SCT used to derive it. The types and frequency of each category of SCT were classified under three main headings: (1) Nominal Constructions, (2) Adverbial Constructions, and (3) Coordinate Constructions (see Appendix C). A ratio of the total number of SCT per T-unit was computed by dividing the total number of SCT by the total number of T-units produced by each pupil.

4. Types of SCT. The relative use of nominal, adverbial, and coordinate SCT was computed for the total number of T-units produced by each pupil.
5. Sentence Patterns. The main clause of each T-unit was described according to a tagmenic order pattern. Three general types of sentence patterns were established in order to account for basic sentence patterns of the T-units produced by these pupils. Type I included the S-V (subject-verb) and S-V-O (subject-verb-object) patterns. Type II included the S-V-Adv (subject-verb-adverb), S-V-Adj (subject-verb-adjective), and S-V-Cn (subject-verb-complement) sentence patterns. Type III included the use of transformations as There-V-S, It-V-S (It-verb-subject), and Question (Wh-questions and yes/no questions).
6. Degree of Correctness. The T-unit analysis and the

ratio of SCT to the number of T-units did not describe adequately the language learning behavior of these subjects who were acquiring English as a second language. It was necessary to determine the degree of "correctness" in relation to the total number of T-units produced by each child. Therefore, each T-unit was classified as "correct," no deviation from adult English, and "incorrect," containing an error due to Spanish interference, misinterpretation of English grammatical rules, or intrusion of nonstandard dialects. A more detailed analysis of the types of errors found in the language samples of these pupils was carried out in a separate study by Politzer and Ramirez.[78]

7. Degree of Explicitness. An important aspect of the language behavior of these pupils was the role of structurally incomplete T-units. The T-unit segmentation as set by Hunt does not account for meaning that could be inferred from the context of the communicative event between the subject and interviewer. For example, in the sequence,

Interviewer: (1) Did you like the movie?

Pupil: (2) Yeah

Interviewer: (3) Why did you like the movie?

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[78]Politzer and Ramirez, op. cit.

Pupil: (4) Because the dove saved the ant

utterance (2) could be reconstructed to say (5) Yeah, (I liked it), and utterance (4) could be reconstructed to say (6) (I liked it) because the dove saved the ant. Exchanges as the one above were typical for most of the pupils. To account for this type of language behavior, the basic T-unit concept was expanded to include utterances similar to (2) and (4). A distinction between structurally complete T-units and structurally incomplete T-units was made in terms of explicitness and implicitness. Those T-units, whether "correct" or "incorrect," that were structurally complete were treated as explicit examples of T-units. Utterances analogous to number (5) were classified as examples of implicit T-units, and those utterances parallel to number (6) were labeled clause-type T-Units. Together the implicit T-units and the clause-type T-units were regarded as examples of implicit language behavior.

Analysis of the Data

The effects of three independent variables on the production and development of the spoken English of Spanish-speaking children were assessed. These three variables were Treatment (Bilingual vs. Monolingual schooling), Grade, which included K, 1, 2, and 3, and Sex (Male or Female). In order to make a relative comparison of the production of different language constructions, the type of construction

(correct and incorrect T-unit, explicit and implicit T-unit, etc.) was included as a within subject factor with repeated measures over subjects. Had the full mixed factorial design, incorporating all three variables been analyzed, there would have been an unequal number of subjects per cell. Since the effects of unequal subjects per cell are not known when a mixed-repeated-measures design is used, it was decided to run three separate factorial ANOVA's with an equal number of subjects in each cell. The first analysis included the factors of Treatment and Grade. The second analysis tested for the effects of Sex and Grade, and the third analysis provided information about the effects of the Treatment and Sex factors.

The resulting three mixed factorial ANOVA's included two between-subjects variables and one within-subjects variable. The within-subjects variable was comprised of all of the dependent measures. This allowed a comparison between dependent measures. The results of these three analyses were consistent for most, but not all, of the dependent measures; Grade was not a significant source of variance for only two of the eleven dependent measures. These were the Number of Structurally Complete T-units and the Percentage of Type III Sentence Patterns. Again, consistency was shown for the factor of Sex for all of the dependent measures except for the Number of Words per T-unit and the Percentage of Type II Sentence Patterns where boys outperformed girls. Table 4 summarizes these results.

Table 4

Main Effects of Sex on the Production of the Number of Words per T-Unit and Percentage of Type II Sentence Patterns

Dependent Measure	Sex	
	Male	Female
Mean Number of Words Per T-Unit[1]	6.73*	5.80
Percentage of Type II Sentence Patterns Produced[2]	6.8*	4.2

[1] $F = 5.76$, df 1/96, $p < .05$

[2] $F = 6.53$, df 1/192, $p < .05$

Independent Variables

Having completed the omnibus F test for the Treatment and Grade analysis, specific questions were then asked of the data by means of orthogonal contrast procedures. The first set of questions attempts to assess the general effect of type of schooling (bilingual vs. monolingual instruction) on second-language development. These questions were also meant to identify developmental trends in the acquisition of English by Spanish-speaking children. The second set of questions attempts to study the production of different types of language constructions in order to provide some insights about the role of correctness, explicitness, and complexity in the acquisition

of English by Spanish-speaking children. Both orthogonal polynomials (e.g., testing for linearity or curvilinearity in the developmental trends) and simple orthogonal comparisons were used in answering these questions.

Effect of Type of Schooling

Is the spoken English of Spanish-speaking children schooled bilingually significantly different from that of a comparable group of children schooled monolingually?

Identifying Developmental Trends

In order to establish the existence of a growth pattern in the spoken English of Spanish-speaking children, the main effects of Grade (the G source in the ANOVA tables) and the interactions that included the effects of Grade were carefully studied. For each of the dependent measures, the following questions were asked:

1. Is the development of spoken English of Spanish-speaking children a linear function of Grade? In other words, is there similar language development at each grade level?
2. Are these developmental trends different for Spanish-speaking children schooled bilingually than for those receiving monolingual instruction?
3. Do these developmental trends differ significantly with respect to the production of different language constructions, or are they similar for all of the constructions?

4. Does the pattern of development of certain English constructions differ significantly between those pupils schooled bilingually and those schooled monolingually?

Second Language Learning Behavior

The role that degree of correctness, explicitness, and complexity had in the language-learning behavior of Spanish-speaking children learning English was examined by using simple orthogonal contrasts. The following questions were asked:

1. When compared with monolingually-schooled pupils, do bilingually-schooled Spanish-speaking children produce
   a. more explicit than implicit T-units?
   b. more implicit than clause type T-units?
2. Do bilingually schooled Spanish-speaking children produce more nominal, adverbial and/or coordinating SCT than monolingually schooled children?
3. Do Spanish-speaking children acquiring English produce significantly more correct than incorrect T-units?
4. Do Spanish-speaking children produce significantly
   a. more explicit T-units than implicit ones?
   b. more implicit than clause type T-units?
5. Do Spanish-speaking children produce significantly
   a. more nominal than adverbial and coordinate SCT?
   b. more adverbial than coordinate SCT?

6. Do Spanish-speaking children produce significantly
   a. more S-V-Adv than S-V-Adj and S-V-Cn sentence patterns?
   b. more S-V-Cn than S-V-Adj sentence patterns?

Further analysis included establishing intercorrelations between the dependent measures and the control variables. An additional criterion measure was added to help establish the correlation of the T-unit measure to a subjective evaluation of language performance. This consisted of an inter-rater agreement rating of the pupil's tape-recorded responses. Three trained students of linguistics listened to each of the recordings arranged in random order and rated each pupil using a six-point scale in four areas: (1) accent, (2) grammar, (3) vocabulary, and (4) fluency. (See Appendix D.)

Dependent Measures

1. Total Number of Words. This is a word count of the individual set of responses made by each pupil. False starts and mazes are not included. Conventional word division as represented in dictionary entries is used, and contractions such as "she'd" and "wasn't" are considered as two words. Compound nouns are counted according to the number of bases involved.
2. Percentage of Words in T-Units. This is a count of all the words used in the structurally complete (explicit) T-units, which includes both correct and incorrect T-units.

3. Total Number of Complete T-Units. The measure includes the total number of structurally complete (explicit) T-units, both correct and incorrect uses.
4. Total Number of T-Units. This measure includes the total number of correct and incorrect structurally complete (explicit) T-units, the total number of implicit T-units, and the total number of clause-type T-units.
5. Number of Words per T-Unit. This is the mean length of the structurally complete (explicit) T-units, both correct and incorrect.
6. Total Number of Sentence Combining Transformations (SCT). This measure includes the total number of nominal, adverbial, and coordinate SCT used to produce all of the structurally complete (explicit) T-units, both correct and incorrect uses.
7. Number of SCT per T-Unit. This measure is a ratio of the total number of SCT per T-unit that is computed by dividing the total number of SCT by the total number of structurally complete (explicit) correct and incorrect T-units produced by each pupil.
8. Types of SCT. This measure includes the relative use of nominal, adverbial, and coordinate SCT used by each pupil to produce all of the structurally complete (explicit) correct and incorrect T-units.
9. Percentage of Type I Sentence Patterns. This measure

includes the percentage of main clauses from the total number of structurally complete (explicit) correct and incorrect T-units which follow the S-V and S-V-O tagmenic order patterns.

10. Percentage of Type II Sentence Patterns. This measure includes the percentage of main clauses from the total number of structurally complete (explicit) correct and incorrect T-units which follow the S-V-Adv, S-V-Adj, and S-V-Cn tagmenic order patterns.

11. Percentage of Type III Sentence Patterns. This measure includes the percentage of main clauses from the total number of structurally complete (explicit) correct and incorrect T-units which use the There transformation (There-V-S), It transformation (It-V-S), and the Question transformation (Wh-questions and yes/no questions).

CHAPTER IV

RESULTS AND DISCUSSION

Effect of Treatment

To answer the main question of interest regarding the superiority of bilingual schooling in comparison to monolingual schooling for Spanish-speaking pupils, a mixed factorial ANOVA with Treatment and Grade as between subject factors and repeated measures as a within subject factor was run. The results of this analysis indicate that bilingual schooling had a significant effect on three of the eleven dependent measures. The bilingually-schooled pupils (BL) produced an overall mean total 160.17 words over all grades, while the monolingually-schooled pupils (ML) produced 120.64 words ($F = 7.02$, df 1/64, $p < .05$). The total number of words did not include audible pauses and other extraneous matter categorized as garbles. The BL group formed a mean total of 10.19 structurally complete T-units as compared to the mean of the ML group which was 7.56 ($F = 5.66$, df 1/64, $p < .05$). The BL group used a mean total of 10.76 T-units, which included explicit, implicit, and clause type T-units, in comparison to the ML group which used 7.22 ($F = 13.66$, df 1/64, $p < .01$).

Developmental Trends

To determine the existence of a growth pattern in the spoken

Table 5

Mean Scores of Monolingually and Bilingually Schooled Spanish-Speaking Children on Second Language Performance Measures

Dependent Measure	Bilingual	Monolingual	F Ratio
Total Number of Words	160.17	120.64	7.02*
Total Number of Complete T-Units	10.19	7.56	5.66*
Total Number of T-Units	10.76	7.22	13.66**

*p < .05

**p < .01

English of Spanish-speaking children, the main effects of Grade and the interactions that included the effects of Grade were studied using orthogonal contrasts procedures. Four basic questions were asked for each of the dependent measures.

Basic Question 1: Is the development of the spoken English of Spanish-speaking children a linear function of grade? In other words, is there similar language development at each grade level?

The main effect of Grade was significant for eight dependent measures, indicating differences between grades K through 3 in the spoken English of these pupils. The growth pattern of five of the dependent measures, (1) total number of words, (2) percentage of words

used in the T-units, (3) total number of complete T-units, (4) number of words per T-unit, and (5) percentage of Type II sentence patterns, was found to be a linear function of Grade by means of orthogonal polynominal comparison (see Table 6). There was an increase in use at each grade level in the percentage of words used in the T-units and in the length of the T-unit. There was a similar growth pattern for the total number of words, total number of complete T-units, and the percentage of Type II sentence patterns between grades K and 2. However, there was a slight decrease in production from grade 2 to grade 3 (see Figures 1, 3, and 8).

The growth pattern of the three measures related to the use of sentence combining transformations, (1) total number of SCT, (2) number of SCT per T-unit, and (3) types of SCT, was also found to be a linear function of grade with a small quadratic component (see Table 6). A quadratic component in this instance means that the increment of SCT between grades K and 1 is less than the increment between grades 1 and 2, and, that between grades 2 and 3, there is a decrease in the use of SCT as shown in Figures 5, 6, and 7.

It appears that with the quantitative measures (1) total number of words, (2) percentage of words used in the T-units, (3) number of words per T-unit, (4) number of complete T-units, and (5) percentage of Type II sentence patterns, the basic pattern of development is one of similar growth between grades K and 1 and between 1 and 2, with a slight increase or decrease between grades 2 and 3 depending upon the measure. With the dependent measures that can

Table 6

Polynomial Orthogonal Contrast Analysis for the Mean Scores of Spanish-Speaking Students in Grades K, 1, 2, and 3 on Second Language Performance Measures

Dependent Measure	Source	df	MS	F
Total Number of Words	Grade (G)	(3)	48,473.85	12.10**
	G linear	1	127,916.10	31.92**
	G quadratic	1	8,343.72	2.08
	G cubic	1	8,671.85	2.16
	error	64	4,006.84	
Percentage of Words Used in T-Units	Grade (G)	(3)	5,061.68	14.29**
	G linear	1	14,288.40	40.36**
	G quadratic	1	58.32	.16
	G cubic	1	864.90	2.44
	error	64	354.20	
Total Number of Complete T-Units	Grade (G)	(3)	296.49	6.70**
	G linear	1	790.76	17.88**
	G quadratic	1	11.80	.27
	G cubic	1	41.12	.93
	error	64	44.22	
Number of Words per T-Unit	Grade (G)	(3)	38.80	13.85**
	G linear	1	112.68	40.24**
	G quadratic	1	1.67	.01
	G cubic	1	2.51	.90
	error	64	2.80	

Table 6 (Continued

Dependent Measure	Source	df	MS	F
Total Number of SCT	Grade (G)	(3)	2,504.49	15.53**
	G linear	1	6,411.02	39.74**
	G quadratic	1	739.59	4.58**
	G cubic	1	345.74	2.14
	error	64	161.30	
Number of SCT per T-Unit	Grade (G)	(3)	2.64	12.81**
	G linear	1	6.71	31.95**
	G quadratic	1	1.17	5.57*
	G cubic	1	.08	.38
	error	64	.21	
Types of SCT	Grade (G)	(3)	834.83	15.52**
	G linear	1	2,141.64	39.83**
	G quadratic	1	246.15	4.57*
	G cubic	1	134.19	2.49
	error	64	53.76	
Percentage of Type II Sentence Patterns	Grade (G)	(3)	.02	3.58*
	G linear	1	.03	6.00**
	G quadratic	1	.006	1.20
	G cubic	1	.009	1.80
	error	64	.005	

*p < 05

**p < .01

Table 7

Mean Scores of Spanish-Speaking Students in Grades K, 1, 2, and 3 on Second Language Performance Measures

Dependent Measure	Grade K	1	2	3	F Ratio
Total Number of Words	77.89	117.56	184.78	181.39	12.10**
Percentage of Words Used in T-Units	56.5	64.7	86.6	91.2	14.29**
Total Number of Complete T-Units	5.33	7.75	11.28	11.14	6.70**
Number of Words Per T-Unit	4.54	5.63	7.25	7.73	13.85**
Total Number of SCT	6.17	17.11	31.44	29.56	15.53**
Number of SCT Per T-Unit	.52	.99	1.35	1.31	12.81**
Types of SCT	2.06	5.70	10.48	9.85	15.52**
Percentage of Type II Sentence Patterns	.03	.04	.07	.06	3.58*

*p < .05

**p < .01

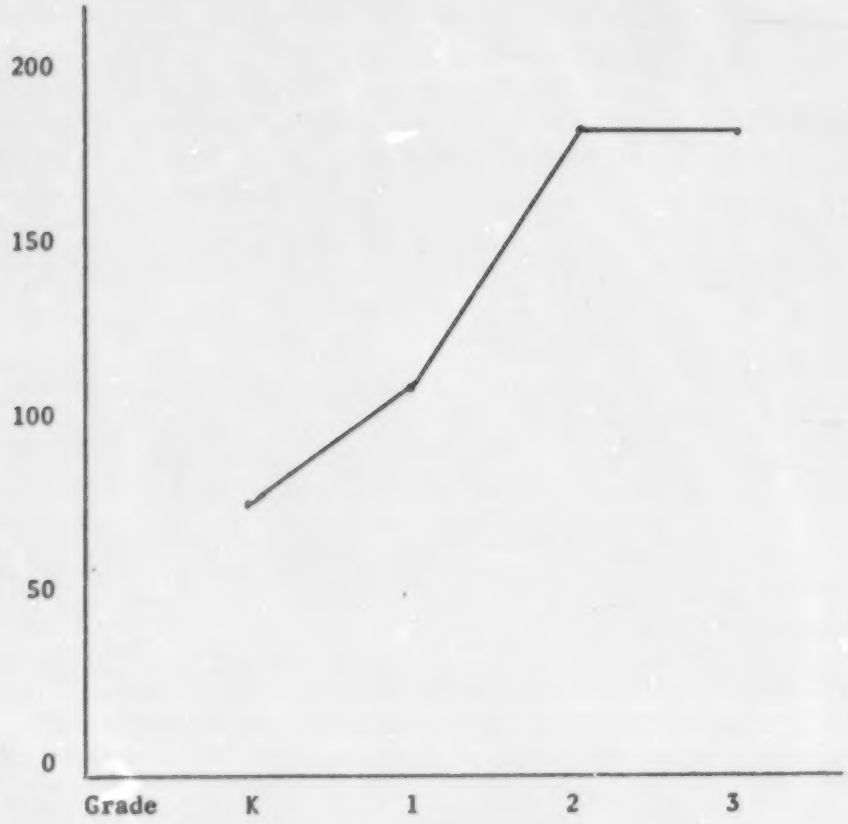

Figure 1.

Mean Production of Total Number of
Words as a Function of Grade

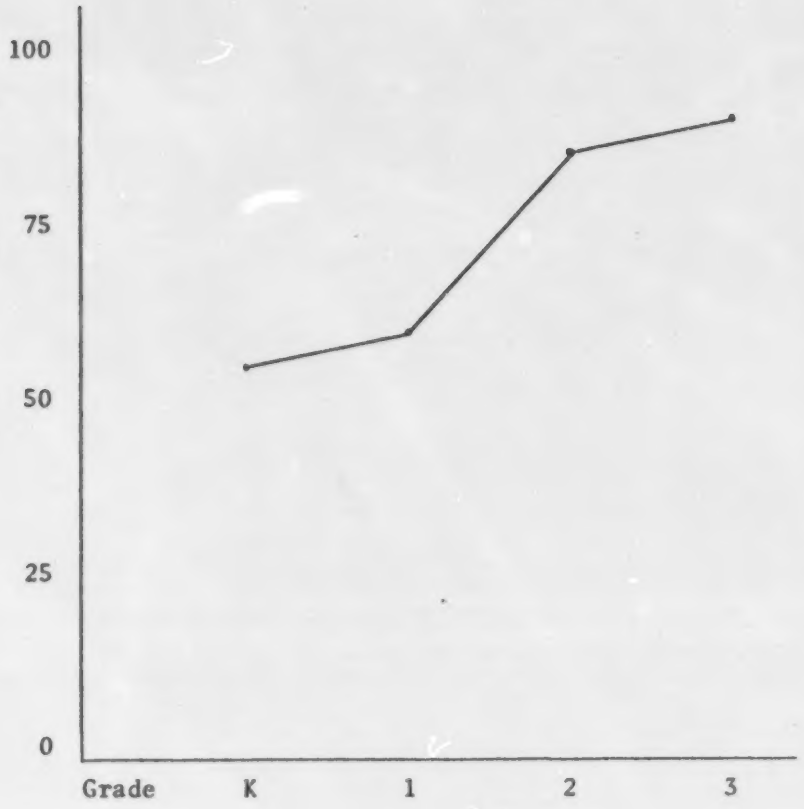

Figure 2

Mean Production of Percentage of Words
Used in T-Units as a Function of Grade

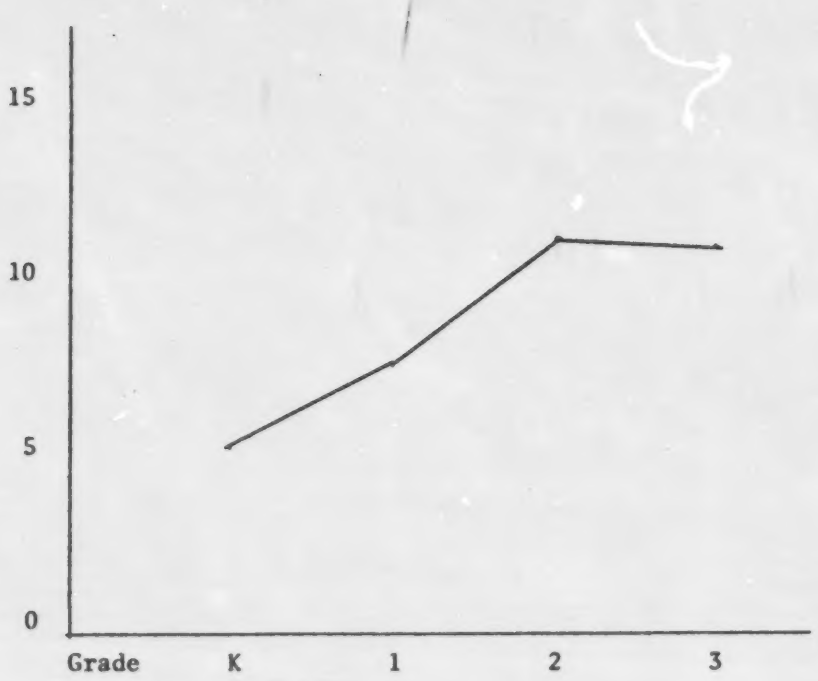

Figure 3

Mean Production of Total Number of Complete
T-Units as a Function of Grade

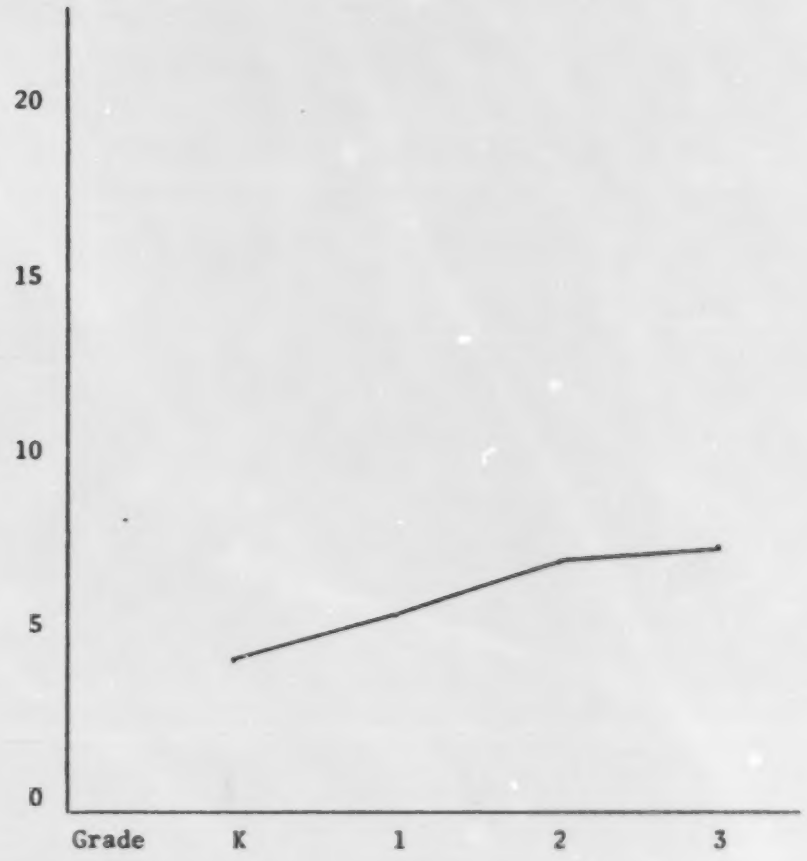

Figure 4

Mean Production of Number of Words per T-Unit
as a Function of Grade

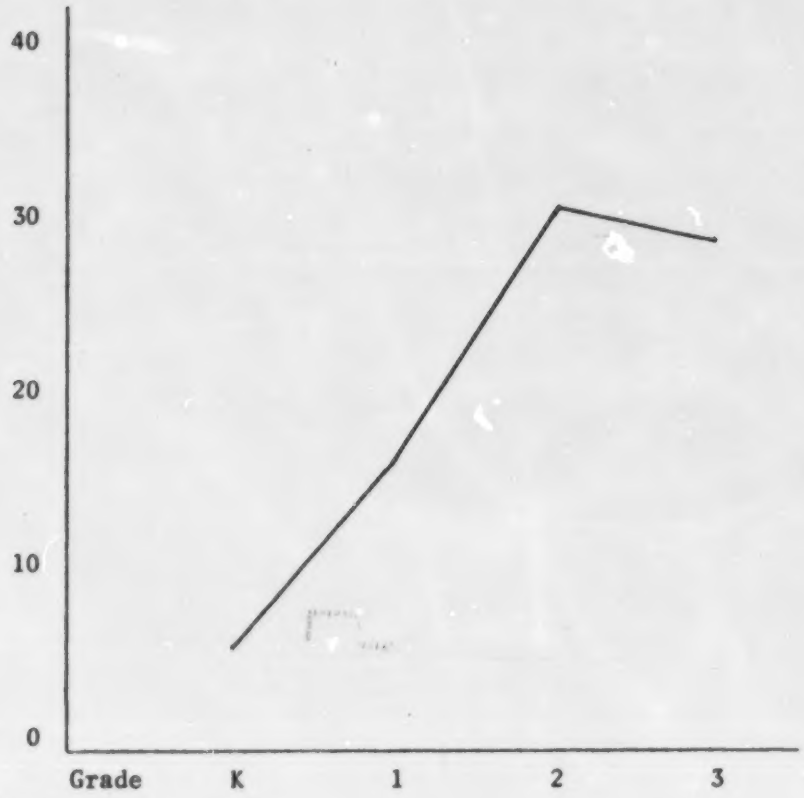

Figure 5

Mean Production of Total Number of SCT
as a Function of Grade

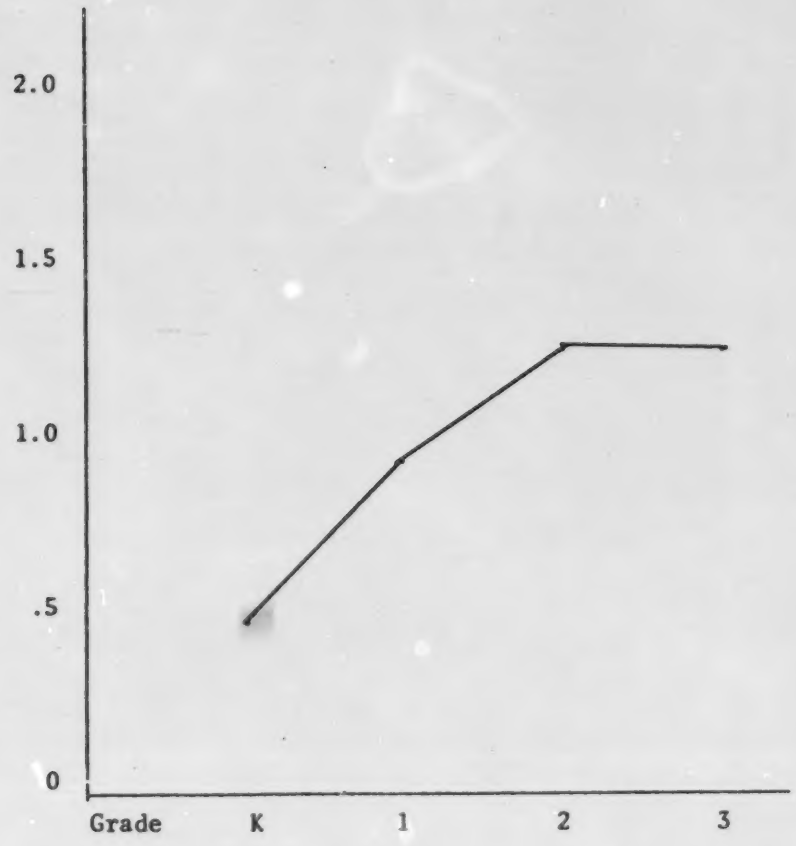

Figure 6

Mean Production of Number of SCT per
T-Unit as a Function of Grade

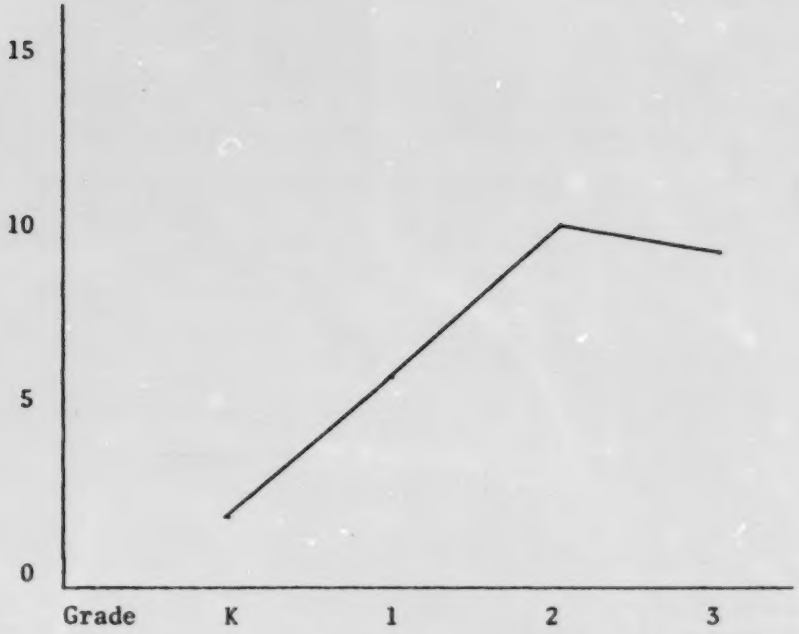

Figure 7

Mean Production of Types of SCT as a Function of Grade

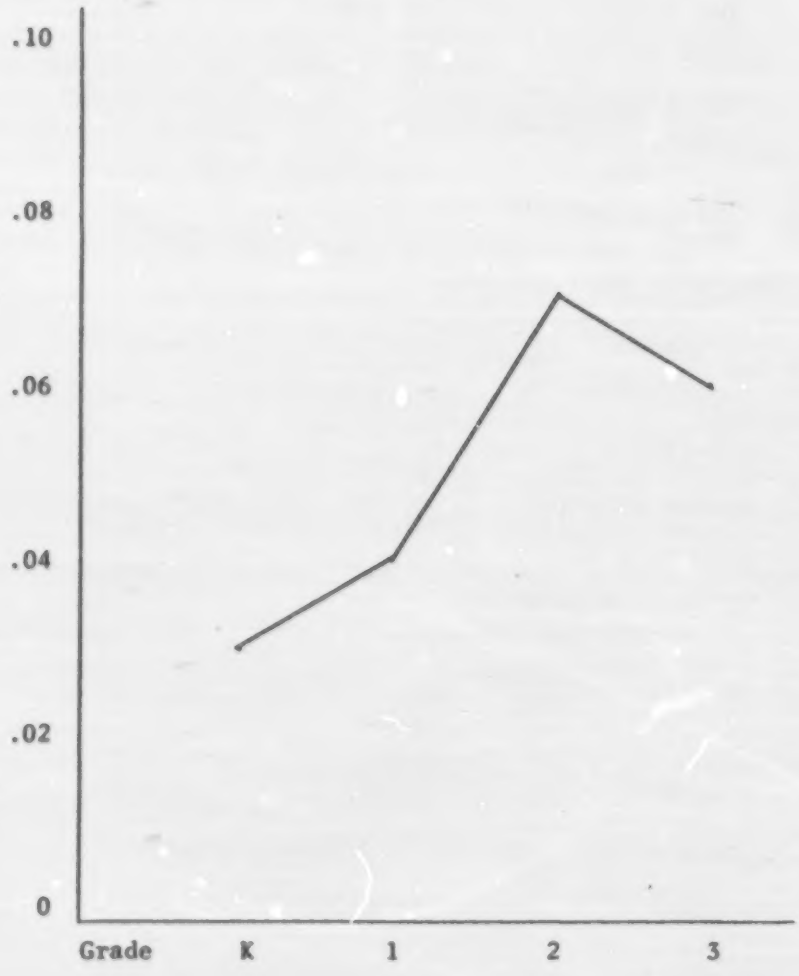

Figure 8

Mean Production of Percentage of Type II Sentence Patterns as a Function of Grade

be considered qualitative since they relate to degree of sentence complexity, the developmental trend for (1) total number of SCT, (2) number of SCT per T-unit, and (3) types of SCT differs in that there is a small increase between grades K and 1 with a much greater increase between grades 1 and 2, with a leveling off taking place between grades 2 and 3.

Question 2: Are these developmental trends different for Spanish-speaking children schooled bilingually than for those receiving monolingual instruction?

For the three dependent measures related to complexity, the growth pattern in the use of (1) total number of SCT and (2) types of SCT can be described in terms of a linear function over grade for both groups (see Table 8). The BL group, as can be seen in Figures 10 and 12, exhibits an increase between each grade level, the most rapid growth taking place between grades 1 and 2. The growth pattern for the ML group differs in that the increases occur between grades K and 2, with a decrease between grades 2 and 3. In comparing the two groups, the ML group makes greater use of SCT initially in grades K and 1, while the BL group employs this linguistic resource to a greater extent beyond grade 2.

The developmental pattern for the number of SCT per T-unit, as used by both groups, can be described as a linear function of grade with a small cubic component (see Table 8). There is slight growth in the use of SCT from grades K to 1, accelerated development between grades 1 and 2, and a leveling off between grades 2 and 3. The ML

Table 8

Polynomial Orthogonal Contrast Analysis for the Mean Scores of Monolingually and Bilingually Schooled Spanish-Speaking Children in Grades K, 1, 2, and 3 on Second Language Performance Measures

Dependent Measure	Source	df	MS	F
Number of Words per T-Unit	Treatment by Grade (TG)	(3)	8.04	2.87*
	TG linear	1	3.03	1.08
	TG quadratic	1	.17	.06
	TG cubic	1	20.71	7.40**
	error	64	2.80	
Total SCT	Treatment by Grade (TG)	(3)	591.83	3.67*
	TG linear	1	1,467.88	9.10*
	TG quadratic	1	185.74	1.15
	TG cubic	1	124.26	.78
	error	64	161.30	
Number of SCT per T-Unit	Treatment by Grade (TG)	(3)	1.01	4.88*
	TG linear	1	1.64	7.81**
	TG quadratic	1	1.17	5.57*
	TG cubic	1	.00	.00
	error	64	.21	
Types of SCT	Treatment by Grade (TG)	(3)	197.23	3.66*
	TG linear	1	488.80	9.09**
	TG quadratic	1	27.41	.51
	TG cubic	1	6.44	.12
	error	64	53.76	

*$p < .05$

**$p < .01$

Table 9

Mean Scores of Monolingually and Bilingually Schooled Spanish-Speaking Children in Grades K, 1, 2, and 3 on Second Language Performance Measures

Dependent Measure	Bilingual				Monolingual			
	K	1	2	3	K	1	2	3
Number of Words per T-Unit	4.09	4.51	7.76	7.38	5.00	6.76	6.74	8.08
Total SCT	5.00	14.44	36.33	39.33	7.33	19.78	26.56	19.78
Number of SCT per T-Unit	.37	.64	1.49	1.45	.67	1.33	1.22	1.17
Types of SCT	1.67	4.81	12.11	13.11	2.44	6.59	8.85	6.59

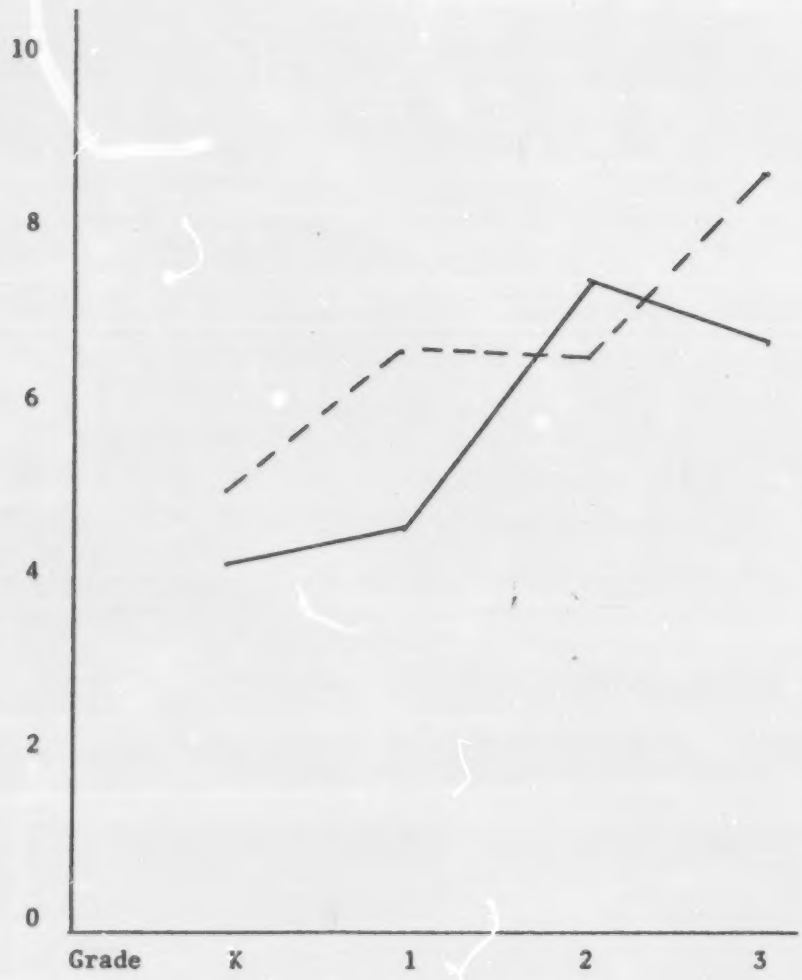

Figure 9

Mean Production of Number of Words per T-Unit as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

_____ Bilingually-Schooled Children

------- Monolingually-Schooled Children

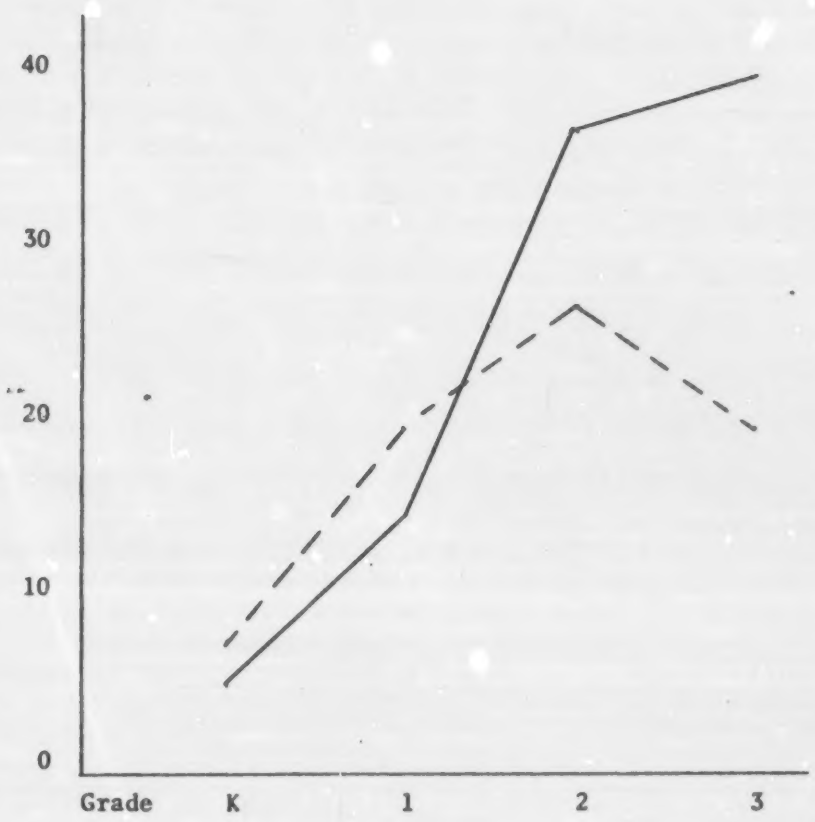

Figure 10

Mean Production of Total SCT as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

_____ Bilingually-Schooled Children

------- Monolingually-Schooled Children

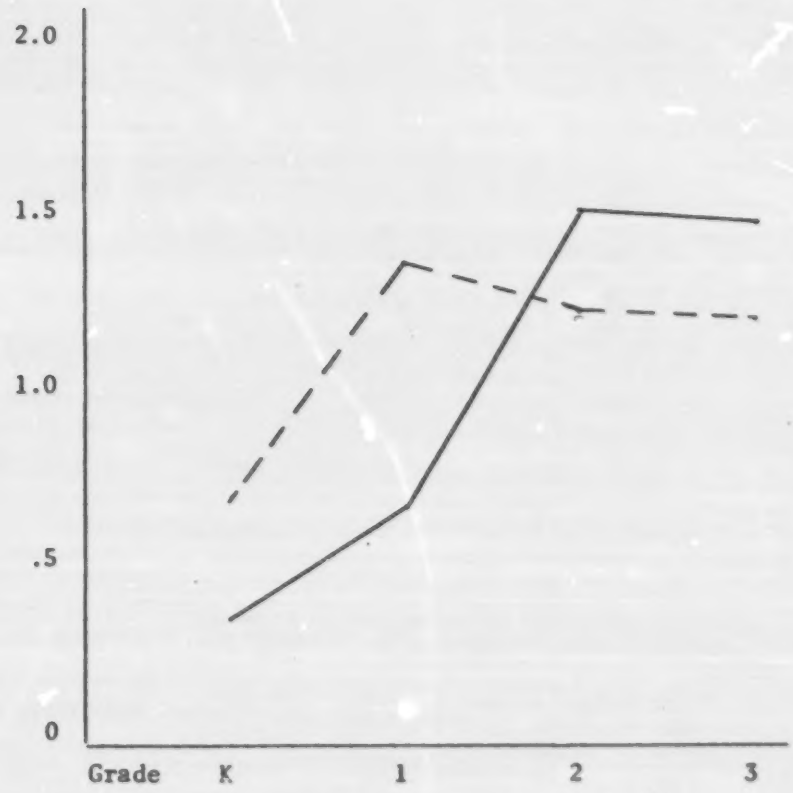

Figure 11

Mean Production of Number of SCT Per T-Unit as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

_____ Bilingually-Schooled Children

------- Monolingually-Schooled Children

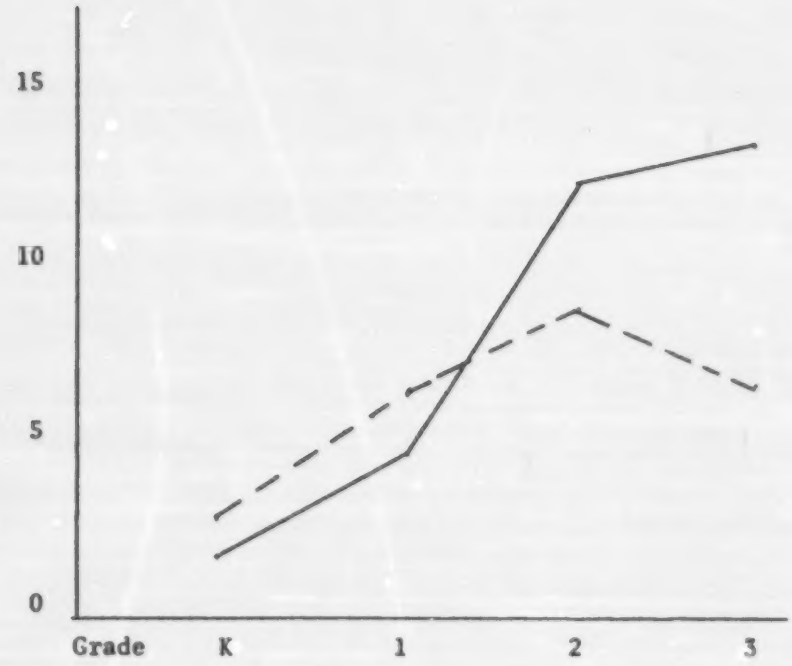

Figure 12

Mean Production of Types of SCT as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

_____ Bilingually-Schooled Children

------- Monolingually-Schooled Children

group exhibits rapid growth between grades K and 1, with a gradual decline occurring after grade 1.

The performance of the BL group on the dependent measures related to complexity is superior to the ML group after grade 1. On the quantitative measure of number of words per T-unit, the BL group surpassed the ML group after grade 2.

Question 3. Do these developmental trends differ significantly with respect to the production of different language constructions or are they similar for all the constructions?

The interaction of Grade and the total number of complete T-units (correct and incorrect) indicates that the number of incorrect T-units decreases while the number of correct T-units increases with each year of schooling after grade 1 (see Figure 13). This growth trend can be characterized as a linear function of grade, and can be seen in Table 10.

A similar developmental pattern can also be observed for the interaction of Grade and the total number of T-units, composed of explicit, implicit, and clause-type T-units. The number of explicit T-unit production increased between grades K and 2, and leveled off between grades 2 and 3. The number of implicit T-units, on the other hand, decreased with each year of schooling. The developmental trend for the number of clause-type T-units did not show changes with years of schooling (see Figure 14). This no-growth pattern might be explained by the elicitation procedures used to obtain the language sample. The children were asked, after having recounted the story,

Table 10

Polynomial Orthogonal Contrast Analysis and Mean Scores of Spanish-Speaking Children on the Production of Correct and Incorrect T-Units

Dependent Measure	Source	df	MS	F
Total Number of Complete T-Units (TC)	TC by Grade (TCG)	(3)	187.65	6.45*
	TCG linear	1	574.29	18.81**
	TCG quadratic	1	11.99	.41
	TCG cubic	1	3.06	.10
	error	164	29.11	

Total Number of Complete T-Units

Grade	Correct T-Units	Incorrect T-Units
K	3.89	6.78
1	8.89	6.61
2	13.78	8.78
3	15.06	7.22

*$p < .05$

**$p < .01$

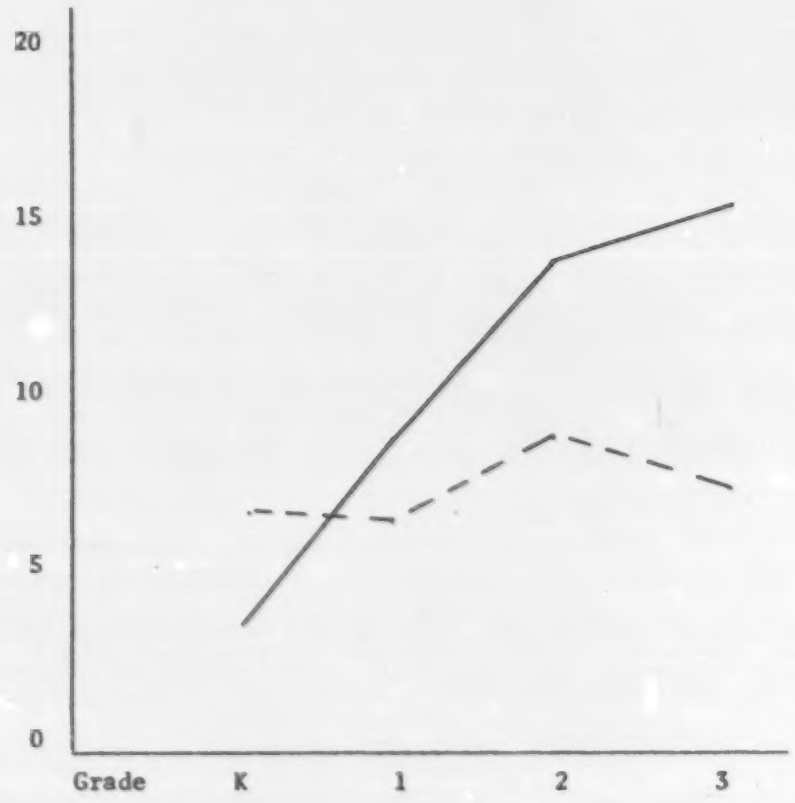

Figure 13

Mean Production of Correct T-Units and
Incorrect T-Units as a Function of Grade

_____ Correct T-Units

------- Incorrect T-Units

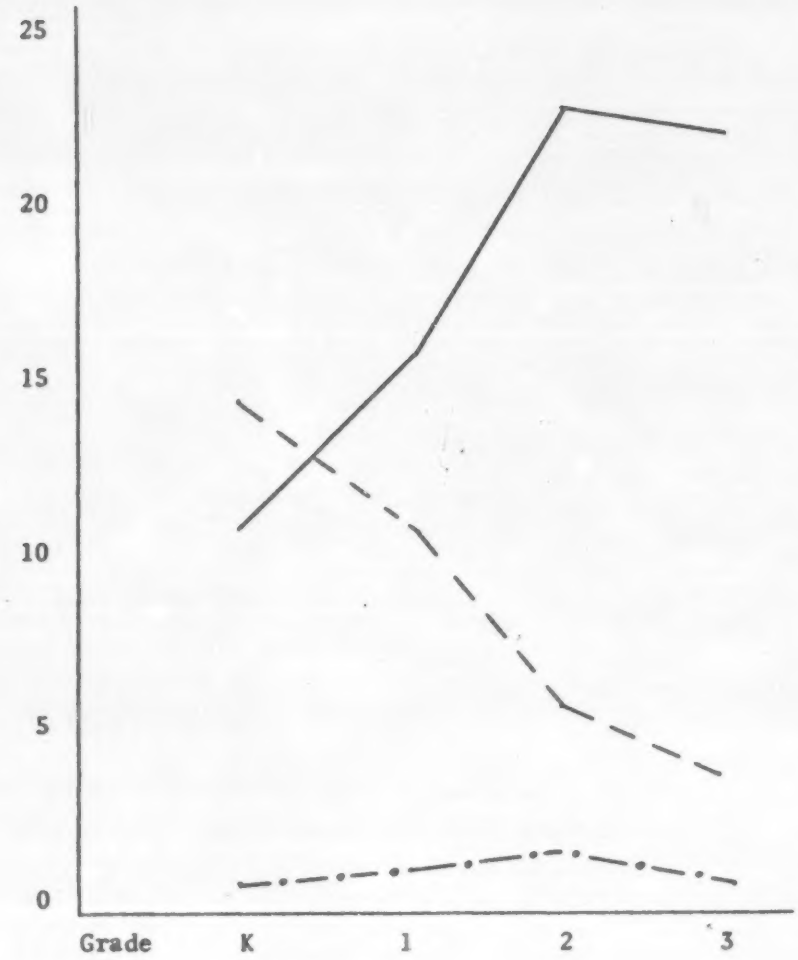

Figure 14

Mean Production of Explicit T-Units,
Implicit T-Units, and Clause Type
T-Units as a Function of Grade

_____ Explicit T-Units

----- Implicit T-Units

-.-.- Clause-Type T-Units

a Wh (why) question to which they usually responded with a subordinate clause ("because . . . " or "cause . . ."). The tendency for the subjects to answer the question in this manner did not change significantly with years of schooling. The overall growth pattern for the total number of T-units (explicit, implicit, and clause-type) may be described as a linear function of grade (see Table 11).

The development of Types of SCTs (nominal, adverbial, and coordinate) is also a linear function of grade (see Table 12). For the three types of SCT, there is an increase between grades K and 1 and between 1 and 2, with a leveling off between grades 2 and 3. While the developmental patterns for the three types of SCT are similar, there is a greater use at each grade level of nominal SCT than adverbial and coordinate combined. The use of coordination is greater than the use of adverbial SCT.

The growth pattern of the percentage of Type I sentence patterns is also a linear function of grade (see Table 13). A comparison of the use of the S-V sentence pattern with the S-V-O illustrates differential usage patterns. For the S-V pattern, there is a decrease in use between grades K and 2, and an increase between grades 2 and 3. For the S-V-O pattern there is a continuous increase in usage between each grade level (see Figure 16).

Question 4: Does the pattern of development of certain English constructions differ significantly between those pupils schooled bilingually and those schooled monolingually?

The analysis of variance for the main effects of Grade and

Table 11

Polynomial Orthogonal Contrast Analysis and Mean Scores of Spanish-Speaking Children on the Production of Explicit, Implicit, and Clause-Type of T-Units

Dependent Measure	Source	df	MS	F
Total Number of T-Units (TT)	TT by Grade (TTG)	(6)	478.00	10.71**
	TTG linear	2	1,325.15	29.37**
	TTG quadratic	2	37.67	.84
	TTG cubic	2	61.91	1.37
	error	128	45.11	

Total Number of T-Units

Grade	Explicit T-Units	Implicit T-Units	Clause Type
K	10.67	14.28	.67
1	15.50	10.61	1.00
2	22.56	5.17	1.33
3	21.72	3.89	.50

**$p < .01$

Table 12

Polynomial Orthogonal Contrast Analysis and Mean Scores of Spanish-Speaking Children on the Production of Nominal, Adverbial, and Coordinating Sentences Combining Transformation (SCT)

Dependent Measure	Source	df	MS	F
Types of SCT (CT)	Types of SCT by Grade (CTG)	(6)	424.90	10.75**
	CTG linear	2	1,135.61	28.72**
	CTG quadratic	2	108.48	2.74
	CTG cubic	2	19.33	.48
	error	128	39.54	

	Types of SCT		
Grade	Nominal	Adverbial	Coordinating
K	5.56	.11	.50
1	14.89	.78	1.44
2	25.67	2.00	3.78
3	25.00	1.61	2.94

**$p < .01$

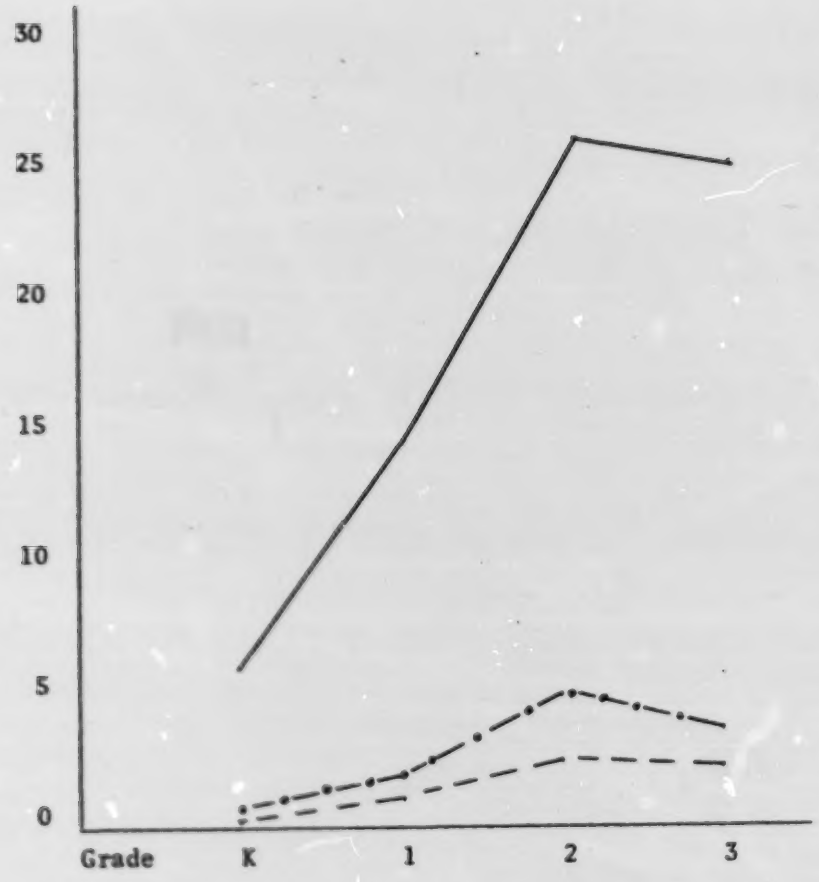

Figure 15

Mean Production of Nominal, Adverbial, and Coordinating Sentence Combining Transformation (SCT) as a Function of Grade

——— Nominal SCT

- - - - - - - Adverbial SCT

-.-.-.- Coordinating SCT

Table 13

Polynomial Orthogonal Contrast Analysis and Mean Scores of Spanish-Speaking Children on the Production of S-V and S-V-O Sentence Patterns

Dependent Measure	Source	df	MS	F
Percentage of Type I Sentence Patterns (PI)	PI by Grade (PIG)	(3)	.21	3.14*
	PIG linear	1	.53	8.91**
	PIG quadratic	1	.10	1.65
	PIG cubic	1	.01	.16
	error	64	.07	

Percentage of Type I Sentence Patterns

Grade	S-V	S-V-O
K	54.5	33.1
1	36.2	37.2
2	30.3	41.1
3	32.9	44.7

*p < .05

**p < .01

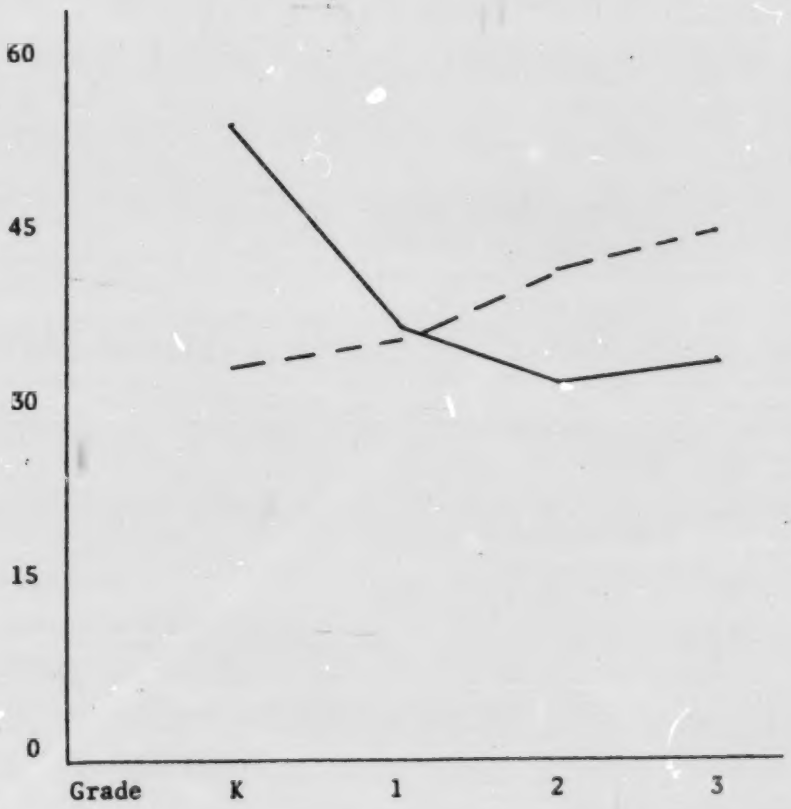

Figure 16

Mean Production of Percentage of Type I
Sentence Patterns as a Function of Grade

_____ S-V Sentence Pattern

------- S-V-O Sentence Pattern

Treatment showed a significant interaction for one dependent measure, type of SCT (nominal, adverbial, and coordinating). The use of nominal SCT did develop consistently over the four grade levels for both groups. There was an increase in use by both groups between grades K and 1. Beyond grade 1, the BL group showed a significantly greater use of nominal SCT than the ML group. The ML group actually showed a decrease between grades 2 and 3. However, this decrease was not found to be significant when analyzed by orthogonal polynominal procedures (see Table 14 and Figure 17).

For the use of adverbial SCT both groups demonstrated an increase between grades K and 1 and between 1 and 2. However, the BL group showed a rapid decrease in use between grades 2 and 3, while the ML group continued to increase their use of adverbial SCT (see Figure 18).

Similarly, for the use of coordinate SCT, both groups continued to use more coordination from grades K through 2, again with a decrease in the BL group after grade 2 and a continuous increase in usage for the ML group. However, the total use of coordinate SCT was greater for the BL group than the ML group. Figure 20 shows the average pattern of usage of adverbial and coordinate SCT combined. The overall pattern of usage can be characterized as a linear function of grade with a quadratic component.

Second Language Learning Behavior

In identifying the developmental trends with respect to the

Table 14

Polynomial Orthogonal Contrast Analysis and Mean Scores of Monolingually and Bilingually-Schooled Spanish-Speaking Children in Grades K, 1, 2, and 3 on the Production of Nominal, Adverbial, and Coordinating Sentence Combining Transformations

Dependent Measure	Source	df	MS	F
Types of SCT	Treatment by Grade by Types of SCT (TGCT)	(6)	152.28	4.00*
	TG (linear) CT	2	748.61	18.93**
	TG (quadratic) CT	2	191.04	4.83*
	TG (cubic) CT	2	.25	.006
	error	128	39.54	

Bilingual School

Grade	I Nominal	II Adverbial	III Coordinating	$\bar{X}$ (II+III)
K	4.56	.00	.44	.22
1	13.00	.78	.67	.72
2	28.78	2.56	5.00	3.78
3	34.67	1.44	3.22	2.33

Monolingual School

Grade	I Nominal	II Adverbial	III Coordinating	$\bar{X}$ (II+III)
K	6.56	.22	.56	.39
1	16.78	.78	2.22	1.50
2	22.56	1.44	2.56	2.00
3	15.33	1.78	2.67	2.22

*$p < .05$

**$p < .01$

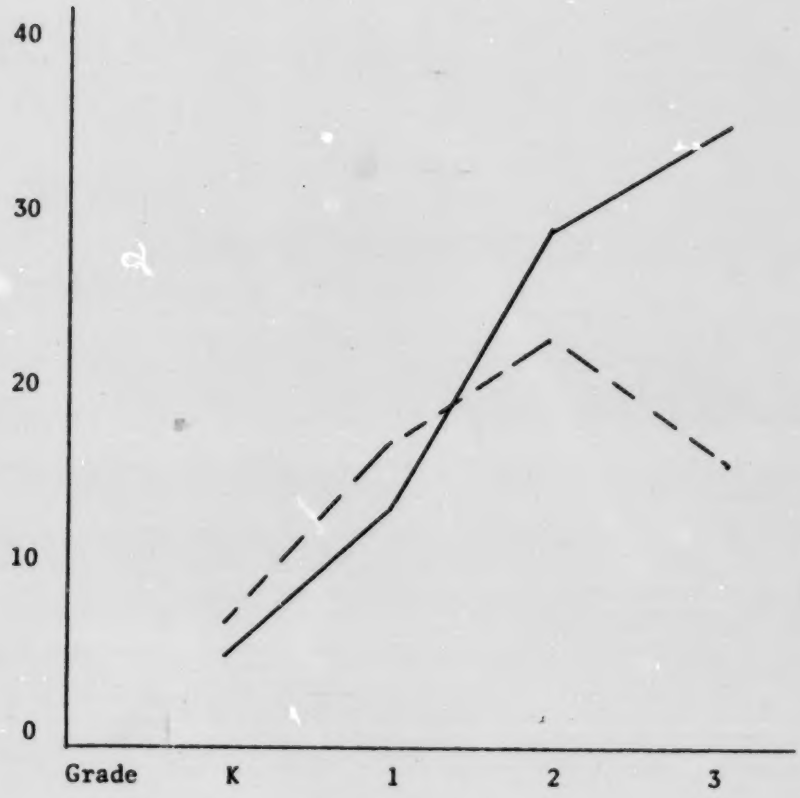

Figure 17

Mean Production of Nominal SCT as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

_____ Bilingually-Schooled Children

------- Monolingually-Schooled Children

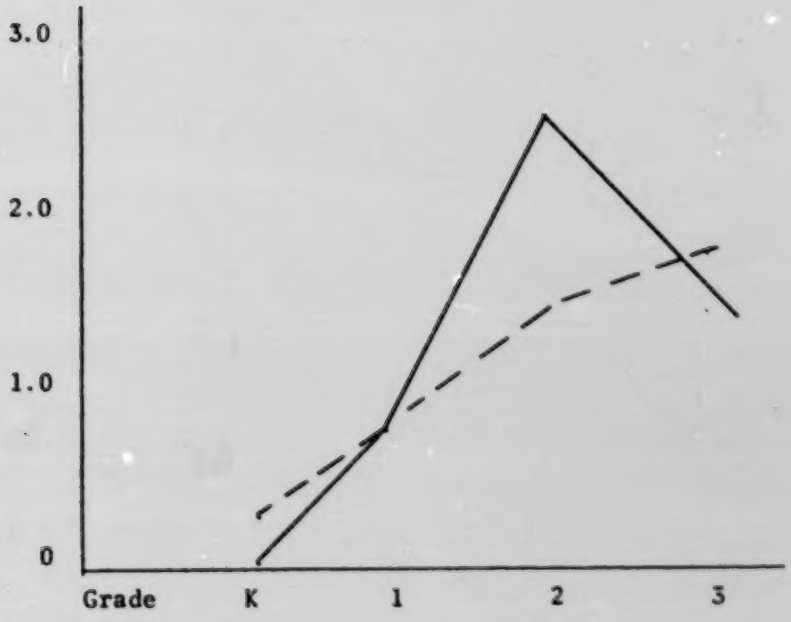

Figure 18

Mean Production of Adverbial SCT as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

_____ Bilingually-Schooled Children

-------- Monolingually-Schooled Children

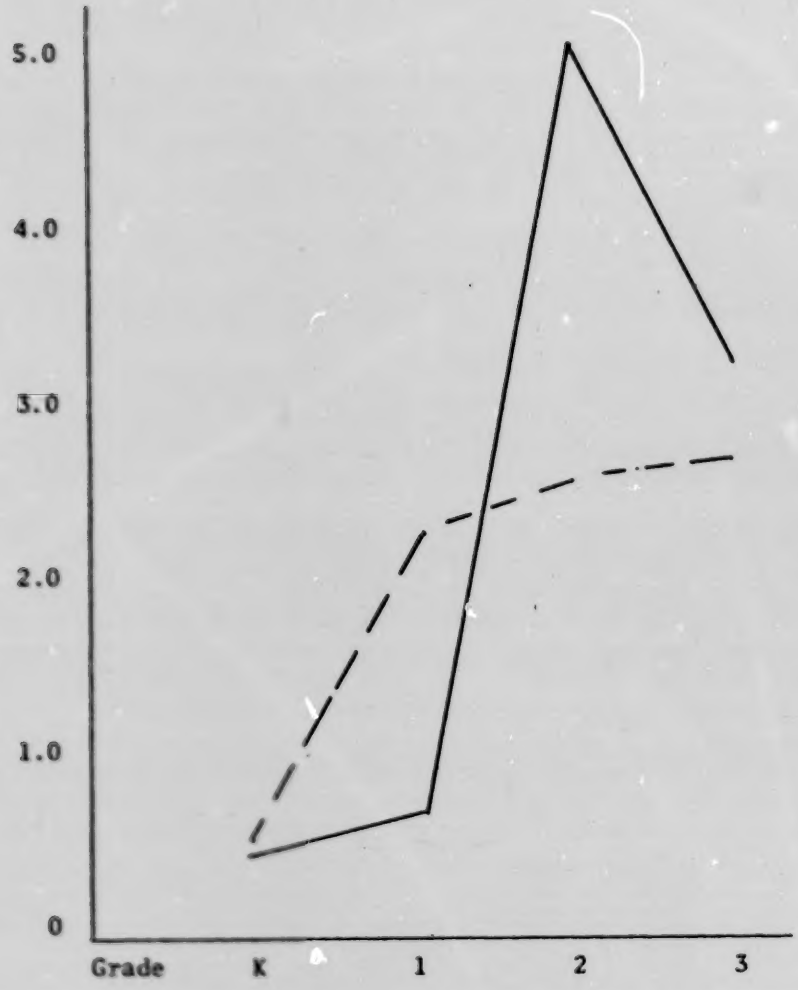

Figure 19

Mean Production of Coordinating SCT as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

——— Bilingually-Schooled Children

- - - - - - - Monolingually-Schooled Children

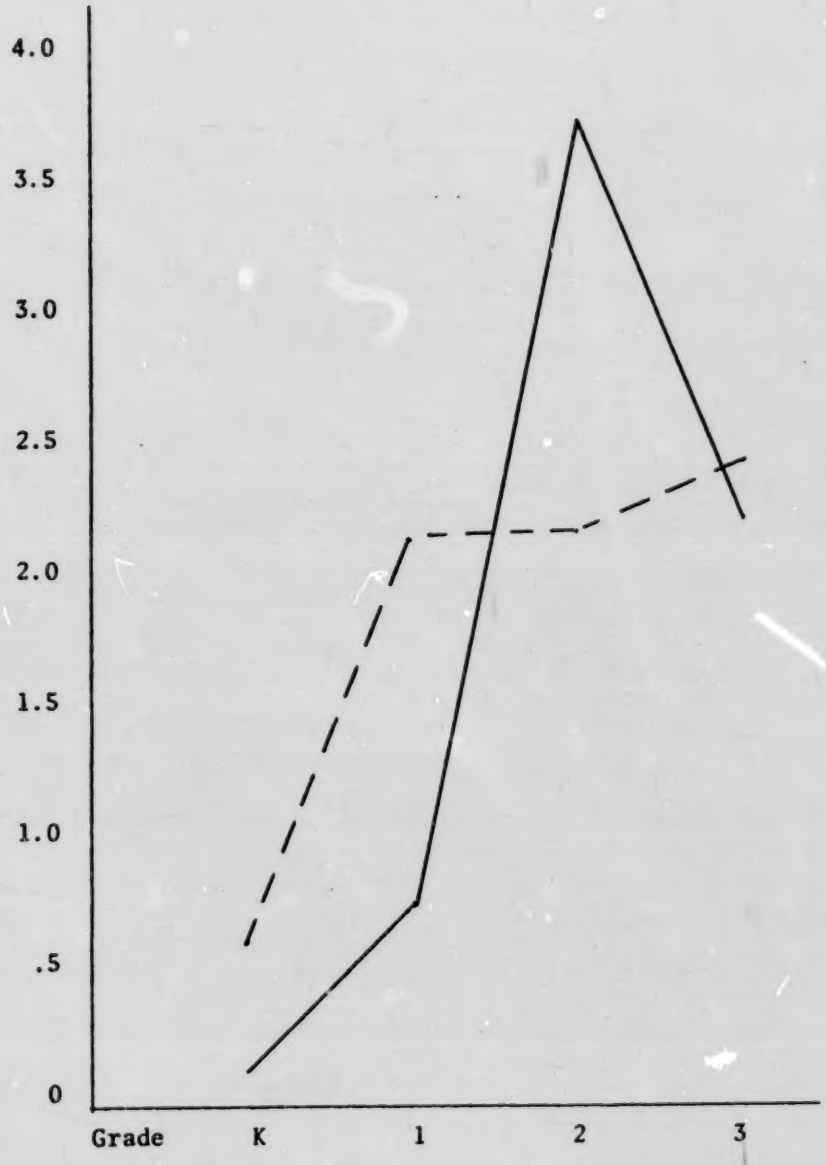

Figure 20

Mean Production of Adverbial and Coordinating SCT as a Function of Grade for Monolingually and Bilingually-Schooled Spanish-Speaking Children

_____ Bilingually-Schooled Children

------- Monolingually-Schooled Children

production of different language construction in English for Spanish-speaking children, certain factors that can be associated with second language learning became apparent. The degree of correctness (number of correct T-units in contrast with the number of incorrect T-units), the degree of explicitness (the use of structurally complete "explicit" T-units, versus the use of structurally incomplete "implicit" T-units or clause-type T-units), and the degree of complexity (the use of nominal, adverbial, and coordinate SCT) were examined by using simple orthogonal contrasts.

When the BL group was compared with the ML group on the role of explicitness in their language production, it was found that there was no significant difference between the two groups on the use of "explicit" structurally complete T-units (see Table 15). The BL group produced more implicit T-units as compared to the ML group. There was no difference between the two groups on the production of clause-type T-units, and both groups used significantly more implicit T-units than clause-type. Figure 21 illustrates the comparative production for both groups and the three types of T-units.

On the degree of complexity or ability to use SCT, there was no difference in the use of adverbial and coordinating SCT for both groups. The significant difference was in the use of nominal SCT. Both groups used more nominal than adverbial and coordinating SCT combined, and the BL group used more nominal SCT than the ML group (see Table 16 and Figure 22).

Overall, of the dependent variables, these Spanish-speaking

Table 15

Orthogonal Contrast Analysis and Mean Scores of Monolingually and Bilingually-Schooled Spanish-Speaking Children on the Production of Explicit, Implicit, and Clause-Type T-Units

Dependent Measure	Source	df	MS	F
Total Number of T-Units	Treatment by Explicit T-Units (ETU)	(2)	173.39	3.84*
	Treatment by ETU vs. Implicit T-Units (ITU)	1	57.81	1.28
	Treatment by ITU vs. Clause Type T-Units (CTTU)	1	287.30	6.37**
	error	128	45.10	

Total Number of T-Units

	Explicit T-Units	Implicit T-Units	Clause-Type T-Units
Bilingual	20.11	11.31	.86
Monolingual	15.11	5.67	.89

*p < .05

**p < .01

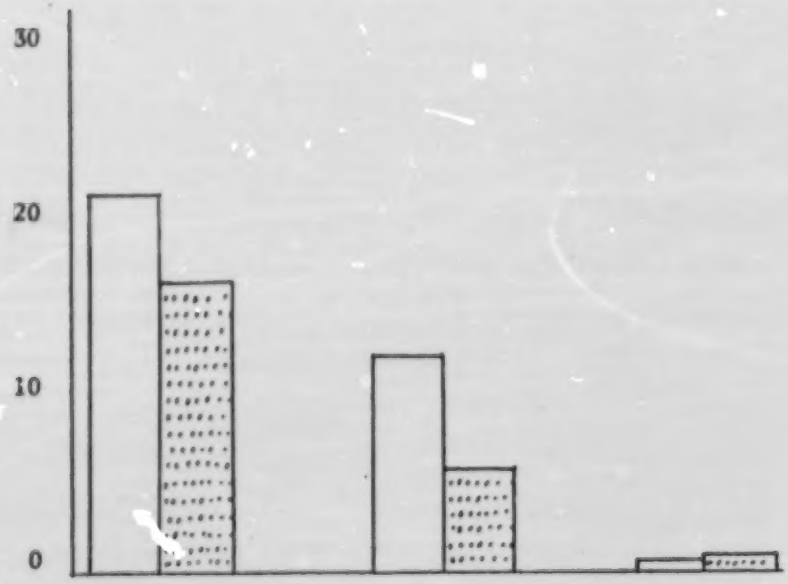

Figure 21

Mean Production of Explicit T-Units, Implicit T-Units, and Clause Type T-Units for Monolingually and Bilingually-Schooled Spanish-Speaking Children

Bilingually-Schooled Children

Monolingually-Schooled Children

Table 16

Orthogonal Contrast Analysis and Mean Scores of Monolingually and Bilingually-Schooled Spanish-Speaking Children on the Production of Nominal, Adverbial, and Coordinating Sentence Combining Transformations

Dependent Measure	Source	df	MS	F
Types of SCT	Treatment by SCT	(2)	133.17	3.37*
	Treatment by Nominal vs. Adverbial and Coordinating	1	263.95	6.68**
	Treatment by Adverbial vs. Coordinating	1	.39	.01
	error	128	39.53	

Types of SCT

	Nominal	Adverbial	Coordinating
Bilingual	20.25	1.19	2.33
Monolingual	15.31	1.06	2.00

*p < .05

**p < .01

Figure 22

Mean Production of Nominal, Adverbial, and Coordinating SCT for Monolingually and Bilingually-Schooled Spanish-Speaking Children

Bilingually-Schooled Children

Monolingually-Schooled Children

children produced more correct than incorrect T-units as seen in Table 17 and Figure 23. They produced significantly more explicit T-units than implicit and clause-type combined, and they utilized significantly more implicit T-units than clause-type T-units (see Table 18 and Figure 24). On the use of SCT, these pupils used significantly more nominal than adverbial and coordinating SCTs combined (see Table 19 and Figure 25). On the production of complete T-units (correct and incorrect), these pupils constructed more T-units following the S-V-Adv sentence pattern than S-V-Cn and S-V-Adj combined (see Table 20 and Figure 26).

Correlations of Control Variables with Dependent Measures

The overall pattern of the correlations of the control variables with the dependent measures derived from the T-unit concept was similar for all the grades and both groups since no significant correlations were found between these sets of variables. The only significant correlations were found in kindergarten for the BL group's production of adverbial SCTs. The number of adverbial SCTs correlated negatively with verbal and nonverbal sections of the Inter-American Test given in Spanish (see Table 21a-d), and this may have been due to chance effect.

The fact that no significant correlations were found between the control variables and the dependent measures together with the fact that no significant differences were found between the BL and ML groups in reference to the control variables may be interpreted as

Table 17

Mean Scores on the Production of Correct and Incorrect T-Units by Spanish-Speaking Children

Dependent Measure	Correct T-Units	Incorrect T-Units	F Ratio
Total Number of Complete T-Units	10.40	7.36	11.54**

**p < .01

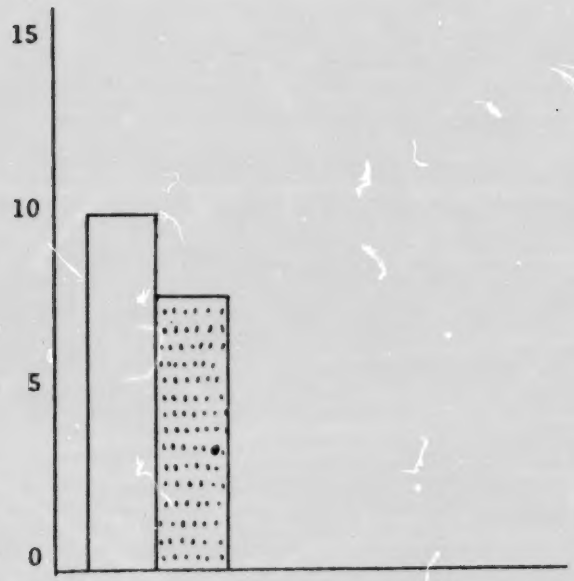

Figure 23

Mean Production of Correct and Incorrect T-Units for Spanish-Speaking Children

Correct T-Units

Incorrect T-Units

Table 18

Orthogonal Contrast Analysis and Mean Scores on the Production of Explicit, Implicit, and Clause-Type T-Units by Spanish-Speaking Children

Dependent Measure	Source	df	MS	F
Total Number of T-Units	Total Number of T-Units (TT)	(2)	5,055.50	112.08**
	Explicit T-Units (ETU) vs. Implicit T-Units (ITU)	1	8,031.08	178.03**
	ITU vs. Clause Type T-Units (CTTU)	1	2,084.84	46.22**
	error	128	45.10	

	Explicit T-Units	Implicit T-Units	Clause Type T-Units
Total Number of T-Units (TT)	17.78	8.48	.87

**p < .01

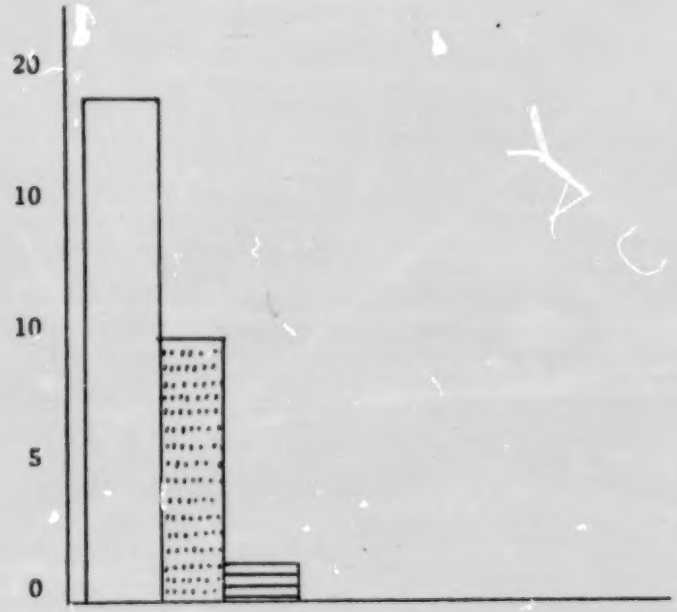

Figure 24

Mean Production of Explicit T-Units,
Implicit T-Units, and Clause-Type T-Units
for Spanish-Speaking Children

Explicit T-Units

Implicit T-Units

Clause-Type T-Units

Table 19

Orthogonal Contrast Analysis and Mean Scores on the Production of Nominal, Adverbial, and Coordinating Sentence Combining Transformations by Spanish-Speaking Children

Dependent Measure	Source	df	MS	F
Types of SCT	Types of SCT	(2)	6,265.28	158.46**
	Nominal vs. Adverbial and Coordinating	1	12,488.49	315.84**
	Adverbial vs. Coordinating	1	38.94	.98
	error	128	39.54	

	Nominal	Adverbial	Coordinating
Types of SCT	17.78	1.13	2.17

**p < .01

Figure 25

Mean Production of Nominal, Adverbial, and Coordinating SCT for Spanish-Speaking Children

Nominal SCT

Adverbial SCT

Coordinating SCT

Table 20

Orthogonal Contrast Analysis and Mean Scores on the Production of S-V-Adv., S-V-Cn, and S-V-Adj. by Spanish-Speaking Children

Dependent Measure	Source	df	MS	F
Type II Sentence Patterns	Sentence Patterns	(2)	.19	36.83**
	S-V-Adv. vs. S-V-Cn and S-V-Adj	1	.38	76.00**
	S-V-Cn vs. S-V-Adj	1	.001	.26
	error	128	.005	

	S-V-Adv.	S-V-Cn	S-V-Adj
Type II Sentence Patterns	11.1	2.5	1.9

**p < .01

Figure 26

Mean Production of the Production of S-V-Adv., S-V-Cn, and S-V-Adj. by Spanish-Speaking Children

S-V-Adv.

S-V-Cn

S-V-Adj.

Table 21 (a)

Correlation of the Control Variables and Dependent Measures

Kindergarten

Bilingual (N = 12)

Dependent Measure	Control Variable: Inter-American Verbal (Spanish)	Inter-American Nonverbal	Inter-American Total
Total Number of Complete T-Units	.09	.10	.10
Number of Correct T-Units	.01	.08	.04
Number of Incorrect T-Units	.13	.05	.09
Number of Words per T-Unit	- .29	- .31	- .31
Total Number of Words	.17	.16	.17
Nominal SCT	- .01	- .04	- .03
Adverbial SCT	.00	.00	.00
Coordinating SCT	- .10	- .13	- .12
Total Number of SCT	- .03	- .05	- .05

Monolingual (N = 12)

Dependent Measure	Inter-American Verbal (Spanish)	Inter-American Nonverbal	Inter-American Total
Total Number of Complete T-Units	.18	.19	.19
Number of Correct T-Units	.02	- .02	- .01
Number of Incorrect T-Units	.20	.21	.22
Number of Words per T-Unit	.03	- .30	- .15
Total Number of Words	.27	.25	.29
Nominal SCT	.17	.24	.23
Adverbial SCT	- .60*	- .76*	- .80*
Coordinating SCT	.35	- .07	.15
Total Number of SCT	.18	.18	.20

*$p < .05$

Table 21 (b)

First Grade

Bilingual (N = 11)

Dependent Measure	Control Variables: Murphy Durrell (Phoneme)	Murphy Durrell (Letter Naming)	Murphy Durrell (Learning Rate)	Murphy Durrell (Total)	Inter-American (Nonverbal)
Total No. of Complete T-U	- .16	- .10	- .04	- .07	- .01
No. of Correct T-Units	.00	- .12	- .09	.01	- .03
No. of Incorrect T-Units	- .33	- .05	.03	- .15	.05
No. of Words per T-Unit	.11	.28	.19	.33	.07
Total No. of Words	- .10	- .05	- .03	- .01	- .00
Nominal SCT	- .02	- .07	- .04	.03	- .06
Adverbial SCT	- .09	.01	.02	.07	- .15
Coordinating SCT	.47	.02	- .01	.29	.22
Total No. of SCT	.00	- .05	- .04	.06	- .05

Monolingual (N = 11)

Dependent Measure	Control Variables: Murphy Durrell (Phoneme)	Murphy Durrell (Letter Naming)	Murphy Durrell (Learning Rate)	Murphy Durrell (Total)	Inter-American (Nonverbal)
Total No. of Complete T-U	- .15	.21	.25	.17	- .07
No. of Correct T-Units	.24	.49	.52	.51	.28
No. of Incorrect T-Units	- .35	- .07	- .04	- .13	- .30
No. of Words per T-Unit	.16	.49	.40	.52	.36
Total No. of Words	- .04	.31	.36	.28	- .06
Nominal SCT	- .11	.24	.27	.21	- .04
Adverbial SCT	.16	.55	.42	.48	.34
Coordinating SCT	- .10	.14	- .01	.10	.27
Total No. of SCT	- .10	.26	.27	.24	.01

Table 21 (c)

Second Grade

Bilingual (N = 13)

Dependent Measure	Control Variables: English Oral Comprehension	Inter-American (Nonverbal)	Coop Math	Murphy Durrell (Phoneme)	Murphy Durrell (Letter Naming)	Murphy Durrell (Learning Rate)	Murphy Durrell (Total)
Total No. of T-Units	.50	- .22	.14	.01	.36	.28	.31
No. of Correct T-Units	.32	- .27	.04	.17	.47	.36	.44
No. of Incorrect T-Units	- .36	- .02	.29	- .32	- .01	.19	- .07
No. of Words per T-Unit	.39	.37	.44	- .18	- .22	.04	- .16
Total No. of Words	.37	- .13	.05	- .03	.29	.24	.26
Nominal SCT	.45	- .20	.17	- .09	.27	.52	.22
Adverbial SCT	- .05	.18	.43	- .18	- .00	- .04	- .08
Coordinating SCT	- .16	.15	.26	.32	.34	.43	.38
Total No. of SCT	.40	- .13	.23	- .02	.31	.25	.27

Monolingual (N = 13)

Dependent Measure	Control Variables: English Oral Comprehension	Inter-American (Nonverbal)	Coop Math	Murphy Durrell (Phoneme)	Murphy Durrell (Letter Naming)	Murphy Durrell (Learning Rate)	Murphy Durrell (Total)
Total No. of T-Units	.25	.19	.10	- .15	- .46	.29	- .08
No. of Correct T-Units	.43	.21	.11	- .10	- .49	.18	- .09
No. of Incorrect T-Units	- .35	- .02	- .01	- .14	- .02	.29	- .00
No. of Words per T-Unit	.49	.27	.51	- .15	.31	- .10	- .02
Total No. of Words	.31	.24	.23	- .14	- .29	.29	- .05
Nominal SCT	.49	.36	.23	.00	- .30	.30	.05
Adverbial SCT	- .15	- .20	.18	- .46	- .36	.00	- .36
Coordinating SCT	.16	- .04	.45	- .21	.28	- .02	- .09
Total No. of SCT	.47	.30	.32	- .08	- .23	.26	- .00

Table 21 (d)

Third Grade

Bilingual (N = 12)

Dependent Measure	Control Variables: English Oral Comprehension	Inter-American (Nonverbal)	Coop Math	Inter-American (Read. Voc.)	Inter-American (Read. Comp.)	Inter-American (Read. Total)
Total No. of T-Units	- .10	- .32	- .28	- .01	- .26	- .16
No. of Correct T-Units	.34	.23	.34	.42	.24	.33
No. of Incorrect T-Units	- .22	- .32	- .33	- .38	- .50	- .47
No. of Words per T-Unit	.04	.13	.17	- .10	.14	.04
Total No. of Words	.13	- .25	- .10	.04	- .08	- .03
Nominal SCT	.30	.21	.07	.08	.06	.07
Adverbial SCT	- .34	.20	- .31	- .42	- .51	- .49
Coordinating SCT	- .11	- .40	- .22	- .03	- .16	- .11
Total No. of SCT	.23	.06	- .01	.02	- .03	- .01

Monolingual (N = 9)

Dependent Measure	Control Variables: English Oral Comprehension	Inter-American (Nonverbal)	Coop Math	Inter-American (Read. Voc.)	Inter-American (Read. Comp.)	Inter-American (Read. Total)
Total No. of T-Units	- .22	- .22	- .33	- .13	- .17	- .18
No. of Correct T-Units	- .01	- .12	- .43	- .09	- .06	- .08
No. of Incorrect T-Units	- .46	.47	.26	- .08	- .25	- .22
No. of Words per T-Unit	.33	.30	.40	.07	- .57	- .39
Total No. of Words	.43	.42	.22	.04	- .34	- .45
Nominal SCT	- .05	.09	- .25	- .23	- .06	- .13
Adverbial SCT	- .52	.62	.31	.09	- .48	- .31
Coordinating SCT	.41	- .39	- .56	- .47	- .41	- .48
Total No. of SCT	- .05	.04	- .31	- .31	- .24	- .29

supporting the assumption that both groups were comparable.

Reliability and Validity of the T-Units and Derived Measures

In order to establish some criteria concerning the validity of the T-unit as a measure of English syntactic development, an attempt was made to correlate the dependent measures with an independent measure of oral language production. The independent measure consisted of an evaluation of the language sample by three trained linguists, who rated each pupil's recorded oral responses on four aspects of language production: (1) accent, (2) grammar, (3) vocabulary, and (4) fluency (see Appendix D). A combined score that represented the overall evaluation of the pupil's oral language was then derived by adding the four areas with a maximum of six points for each area. This overall score assigned by each rater to each pupil was then correlated with the dependent measures derived from the T-unit concept. Table 24 contains these correlations. One can conclude that the T-unit analysis was a valid measure of oral English language production since almost all of the correlations were found to be statistically significantly different from zero.

In addition, as a measure of the reliability among the three linguists, inter- and intra-rater correlations were computed. Table 22 contains the inter-rater correlations for the four aspects of language production evaluated plus a combined total score. From this table, one can conclude that inter-rater judgments were reliable. Table 23 contains the intra-rater correlations for the four

evaluative measures of oral language production. A high intra-rater correlation is considered to be a good indicator of internal consistency for the raters' subjective judgments. This internal consistency may also be interpreted as another indication of the reliability of intra-rater judgments.

Table 22

Correlation of Rater 1, Rater 2, and Rater 3 in the Area of Accent, Grammar, Vocabulary, Fluency, and a Total Score

	Accent	
	Rater 2	Rater 3
Rater 1	.77**	.72**
Rater 2		.65**
	Grammar	
	Rater 2	Rater 3
Rater 1	.78**	.73**
Rater 2		.69**
	Vocabulary	
	Rater 2	Rater 3
Rater 1	.76**	.80**
Rater 2		.79**
	Fluency	
	Rater 2	Rater 3
Rater 1	.71**	.78**
Rater 2		.73**
	Total	
	Rater 2	Rater 3
Rater 1	.90**	.90**
Rater 2		.86**

**$p < .01$

Table 23

Correlation of Accent, Grammar, Vocabulary, and Fluency for Rater 1, Rater 2, and Rater 3

	Rater 1			
	AC	GRA	VOC	FL
Accent (AC)	1.00	.78**	.80**	.78**
Grammar (GRA)		1.00	.87**	.81**
Vocabulary (VOC)			1.00	.86**
Fluency (FL)				1.00
	Rater 2			
	AC	GRA	VOC	FL
Accent (AC)	1.00	.80**	.80**	.77**
Grammar (GRA)		1.00	.80**	.73**
Vocabulary (VOC)			1.00	.73**
Fluency (FL)				1.00
	Rater 3			
	AC	GRA	VOC	FL
Accent (AC)	1.00	.63**	.69**	.70**
Grammar (GRA)		1.00	.79**	.77**
Vocabulary (VOC)			1.00	.85**
Fluency (FL)				1.00

**p < .01

Table 24

Correlation of Dependent Measures with Rater 1, Rater 2, and Rater 3

Dependent Measure	Rater 1	Rater 2	Rater 3
1. Total Number of Complete T-Units	.42**	.46**	.44**
2. Number of Correct T-Units	.49**	.49**	.49**
3. Number of Incorrect T-Units	.17	.23*	.18
4. Number of Words per T-Unit	.67**	.69**	.64**
5. Total Number of Words	.49**	.54**	.52**
6. Nominal SCT	.50**	.51**	.52**
7. Adverbial SCT	.38**	.40**	.40**
8. Coordinating SCT	.37**	.36**	.40**
9. Total Number of SCT	.52**	.53**	.55**
10. Number of SCT per T-Unit	.58**	.59**	.59**

*p < .05

**p < .01

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

One of the most important findings of this study was the general positive effect bilingual schooling had on the development of the oral English of Spanish-speaking pupils. The BL group produced more language, and, when the language sample was segmented into T-units, it produced more structurally complete T-units than the ML group. On measures related to syntactic complexity, defined in terms of the number and type (nominal, adverbial, and coordinate) of sentence combining transformations used, the performance of the BL group was superior to the ML group after grade 1 or the beginning of grade 2.

For both groups, years in school did account for measurable differences in the use of certain English language constructions. The effects of Grade were significant for eight of the eleven dependent measures. Overall, these pupils produced more correct T-units than incorrect, more explicit structurally complete T-units than implicit and clause-type combined, and more nominal SCTs than adverbial and coordinating SCTs combined.

Interpretation of the Findings

Several factors should be kept in mind when interpreting the results. The language situation to which these pupils responded may have influenced the type of oral English they produced. They were

asked to recount and interpret the story enacted silently--an animated cartoon version of Aesop's "The Ant and the Dove." Cazden has argued that the nature of the task may influence the language produced by children. She considers the topic, the task, and the listener as being three critical factors.[79] A study by Strandberg shows that four and five year olds talk more about a toy or a silent film of the toy than about a still picture of the toy.[80] Berlyne and Frommer have noted that kindergarten and elementary schoolchildren, when invited to ask questions about stories and pictures presented to them, will ask more questions about stories and pictures that are novel or surprising to them.[81] Brent and Katz have found that preschool children given pictures and then asked to tell stories about them will produce longer stories, which are better integrated, if the pictures are removed before the retelling of the story.[82]

The linguistic analysis which was used to study the language patterns of these pupils did not deal with all aspects of language or the full range of grammatical structures. The major focus was on

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[79]Courtney B. Cazden, "The Neglected Situation in Child Language Research and Education," in Language and Poverty, ed. by Frederick Williams (Chicago: Markham Publishing Company, 1970), pp. 81-101.

[80]T. E. Strandberg, "An Evaluation of Three Stimulus Media for Evoking Verbalizations from Preschool Children" (unpublished master's thesis, Eastern Illinois University, 1969).

[81]D. E. Berlyne and F. D. Frommer, "Some Determinants of the Incidence and Content of Children's Questions," Child Development, 37 (1966), 177-189.

[82]S. B. Brent and E. W. Katz, A Study of Language Deviations and Cognitive Processes. Progress Report No. 3, Office of Economic Opportunity Job Corps, Contract 1209, Wayne State University, 1967.

the use of T-units and derived measures, which included the use of nominal, adverbial, and coordinating sentence combining transformations. A semantics-based linguistic analysis, for example, might have revealed other important aspects of the control of oral English constructions. An analysis such as this might have shown more about the manner in which these pupils structure information.

Educational Implications

In interpreting the general positive effects of bilingual schooling on the development of the oral English of Spanish-speaking children, one needs to consider the role of time or years of schooling. The effects of bilingual education are not necessarily visible during the first few years of instruction. The performance of the BL group, for the most part, was inferior to that of the ML group during the first two years of schooling. It was not until the end of the first grade or the beginning of the second grade (or after two or three years of schooling) that the BL group surpassed the ML group on language performance measures.

The role of time also needs to be considered when analyzing the oral English development of these two groups of Spanish-speaking pupils, regardless of bilingual or monolingual instruction. Since these pupils are acquiring English as a second language, one might expect the growth pattern to be somewhat different from that of native English-speaking children. Some of these general differences might be observed by comparing these Spanish-speaking pupils with pupils who were selected from white middle-class families in Murfreesboro,

Tennessee and who had responded to a similar language task after viewing two animated cartoons of Aesop fables.[83]

Table 25

Mean Number of Total Words Produced by Native English-Speaking Pupils and Spanish-Speaking Pupils Learning English as a Second Language in Grades K, 1, 2, and 3

	Grade			
Group	K	1	2	3
English-speaking	209.4	245.1	325.6	510.3
Spanish-Speaking	77.9	117.6	184.8	181.4

Table 26

Mean Number of Words per T-Unit Used by Native English-Speaking Pupils and Spanish-Speaking Pupils Learning English as a Second Language in Grades K, 1, 2, and 3

	Grade			
Group	K	1	2	3
English-speaking	7.07	7.97	8.33	8.73
Spanish-speaking	4.54	5.63	7.25	7.73

Tables 25 and 26 show the comparative growth of oral English for both groups of pupils. Whatever interpretation one might want to

[83] O'Donnell, Griffin, and Norris, op. cit.

give to the results, one needs to keep in mind the non-comparability of the two groups, especially in terms of socio-economic status and in terms of first and second language development. The Spanish-speaking group was acquiring English as a second language, and the pupils came from low-income homes. The English-speaking group, in contrast, spoke English natively and the pupils came from middle-income homes. With this in mind, one can observe a general growth pattern for each group on both measures. The greater overall wordage production by the English-speaking group in comparison to the Spanish-speaking group is not as meaningful a result as the comparative growth of the T-unit, as can be seen in Table 26. The length of the T-unit does not increase much for the English-speaking group from grades K to 3. However, for the Spanish-speaking group the number of words per T-unit increases from 4.54 words in kindergarten to 7.73 words by grade 3. The difference between the two groups in the length of the T-unit is one word at grade 3, and this difference is minimal.

Lambert found in his longitudinal investigation of English-Canadian children schooled exclusively in French in grades K and 1 and mainly in French from grades 2 through 4, that the group at grade 4 (or after five years of schooling in French) was not as fluent as the French control group. They made more errors in French production, especially errors related to gender and contraction, and they were not able to decode the descriptive speech of children as well as the native French group. Their knowledge of vocabulary, their free associations in French were "as rapid, mature, and appropriate as those

of the Controls," and they demonstrated "native-like skill in decoding spontaneous descriptions produced by French-speaking adults or by children of their own age."[84]

In terms of the development of the spoken English of Spanish-speaking pupils, the distinction of correct and incorrect and the notion of explicit and implicit T-units have educational relevance. Initially, these pupils produced more incorrect and implicit T-units. There was a tendency for these two types of constructions to decline in use as the children began to produce more explicit and correct T-units. A recognition on the part of the teacher that attention should be given to the child's meaning (use of implicit language units) as opposed to superficial language he produces or does not produce might affect the sequencing of language instruction in the early grades. Similarly, the role of errors in the pupil's English needs to be re-examined. MacNamara points out that

> a mother accepts all the child's remarks which are both true and mannerly; she does not often correct pronunciation or grammar until the child is about five by which time he is almost a master of his language. The conscientious teacher pounces on all departures from phonological and syntactic perfection; she does not care what the child says as long as he says it correctly. The schoolchild, unused to such treatment in learning his first language, is unnerved and finds himself at a disadvantage. . . .[85]

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[84] W. E. Lambert and G. R. Tucker, Bilingual Education of Children --The St. Lambert Experiment (Rowley, Mass.: Newbury House Publishers, Inc., 1972), p. 204.

[85] John MacNamara, "Attitudes and Learning a Second Language," in Language Attitudes: Current Trends and Prospects, ed. by Roger W. Shuy and Ralph W. Fasold (Washington, D.C.: Georgetown University Press, 1973), p. 39.

Cazden believes that

> It should be possible to design an educational environment that reactivates the natural language-learning abilities which all children have. . . . Reactivating language-learning abilities necessarily means harnessing children's motivations as well. Here, as much as in teaching strategies is where the problems of minority-group children may lie.[86]

Suggestions for Further Research

The positive effects of bilingual education on the spoken English of Spanish-speaking children needs to be explored beyond the third grade. The third grade appears to be an important year in the development of oral English for these pupils. A leveling-off pattern of the production of certain English constructions takes place between the second and third grades. Does this pattern continue to the higher grades?

In studying the English of Spanish-speaking children, one needs to consider other factors which affect its development. This includes the role that attitudes and motivation play in the development of English for each child. The role of attitudes ought to include the attitudes toward English and Spanish, and these attitudes are in operation beyond the school setting. In this particular study, those parents who had a favorable attitude toward Spanish sent their children to the bilingual program as opposed to those who preferred to have their children instructed only in English. In short, there are a

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[86]Courtney B. Cazden, Child Language and Education (New York: Holt, Rinehart and Winston, Inc., 1972), p. 177.

number of sets of attitudes in operation: those of the parents, those of the child, and those of the community. A more complete study of oral English language development would need to take these attitudinal factors into account to include the comparative development of both English and Spanish. The use of a longitudinal study would probably give one the opportunity to examine the effect of the factors on the language development of Spanish-speaking schoolchildren.

BIBLIOGRAPHY

Allred, Forest Rich. Errors in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade III in the State of Colorado. Ed.D. Dissertation, University of Northern Colorado, 1970.

Amsden, Constance E. A Study of the Syntax of the Oral English by Thirty Selected Mexican-American Children Three to Five Years Old in a Preschool Setting. Ph.D. Dissertation, Claremont Graduate School and University Center, 1969.

Angel, Frank. "Social Class or Culture? - A Fundamental Issue in the Education of Culturally Different Students." In The Language Education of Minority Children, pp. 37-47. Edited by Bernard Spolsky. Rowley, Mass.: Newbury House Publishers, Inc., 1972.

Berlyne, D. E. and Frommer, F. D. "Some Determinants of the Incidence and Content of Children's Questions." Child Development, 37 (1966): 177-189.

Bilingual Education - Hearings Before the Special Subcommittee on Bilingual Education of the Committee on Labor and Public Welfare. Ninetieth Congress. First Session on S. 428. Parts I and II, May-July, 1967. Washington, D.C.: Government Printing Office, 1967.

Bloom, Lois M. Language Development: Form and Function in Grammar. Cambridge, Mass.: MIT Press, 1970.

Brent, S. B., and Ratz, E. W. A Study of Language Deviations and Cognitive Processes. Progress Report No. 3, Office of Economic Opportunity, Job Corps Contract 1209, Wayne State University, 1967.

Brown, Roger. A First Language. Cambridge, Mass.: Harvard University Press, 1973.

Brisk, Maria Estela. The Spanish Syntax of the Pre-School Spanish American: The Case of the New Mexican Five-Year Old Children. Ph.D. Dissertation, University of Texas at Austin, 1973.

Campbell, Russell N. "Bilingual Education for Mexican-American Children in California." In Bilingualism in the Southwest, pp. 30-37. Edited by Paul K. Turner. Tucson, Arizona: The University of Arizona Press, 1973.

Carrow, Elizabeth. "Auditory Comprehension of English by Monolingual and Bilingual Preschool Children." Journal of Speech and Hearing Research, 15:2 (June 1972): 407-412.

_____. "Comprehension of English and Spanish by Preschool Mexican-American Children" Modern Language Journal, 50:5 (May 1971): 299-306.

Carrow, Sister Mary Arthur. "Linguistic Functioning of Bilingual and Monolingual Children." Journal of Speech and Hearing Disorders, 22:3 (September 1957): 371-380.

Carter, Thomas P. Mexican Americans in School: A History of Educational Neglect. New York: College Entrance Examination Board, 1970.

Cazden, Courtney B. Child Language and Education. New York: Holt, Rinehart, and Winston, Inc., 1972.

_____. "The Neglected Situation in Child Language Research and Education." In Language and Poverty, pp. 81-101. Edited by Frederick Williams. Chicago: Markham Publishing Company, 1970.

Chomsky, Carol. The Acquisition of Syntax in Children 5 to 10. Cambridge, Mass.: MIT Press, 1969.

Cohen, Andrew D. Innovative Education for La Raza: A Sociolinguistic Assessment of a Bilingual Education Program in California. Ph.D. Dissertation, Stanford University, 1972.

Cornejo, Ricardo J. "The Acquisition of Lexicon in the Speech of Bilingual Children." In Bilingualism in the Southwest, pp. 67-93. Edited by Paul K. Turner. Tucson, Arizona: The University of Arizona Press, 1973.

Dato, Daniel P. Research Handbook on Children's Language Learning. Preliminary Edition. Washington, D.C.: U.S. Office of Education, 1971.

deVilliers, Jill G. and deVilliers, Peter A. "A Cross-Sectional Study of the Acquisition of the Grammatical Morphemes in Child Speech." Journal of Psycholinguistic Research, 2:3 (July 1973): 267-278.

Dulay, Heidi C. and Burt, Marina K. "Goofing: An Indicator of Children's Second Language Learning Strategies." Language Learning, 22:2 (December 1972): 235-252.

Gonzalez, Gustavo. Some Observations on the Speech of Migrant Children in Texas. Arlington, Va.: Center for Applied Linguistics, July 1973 (unpublished manuscript).

_____. The Acquisition of Spanish Grammar by Native Spanish Speakers. Ph.D. Dissertation, University of Texas at Austin, 1970.

Gumperz, John, and Hernandez-Chavez, Eduardo. "Bilingualism, Bidialectalism, and Classroom Interaction." In Language in Social Groups, p. 325. By John Gumperz. Stanford, Ca.: Stanford University Press, 1971.

Hatch, Evelyn. Four Experimental Studies of Syntax in Young Children. Inglewood, Ca.: Southwest Regional Laboratory for Research and Development, October 1969.

Hernandez-Chavez, Eduardo. Early Code Separation in the Acquisition of English by Spanish-Speaking Children. Paper presented at Stanford Child Language Research Forum, March 1972.

_____. El Lenguaje de los Chicanos: Regional and Social Characteristics of the Languages Used by Mexican-Americans. Arlington, Va.: Center for Applied Linguistics, forthcoming.

Hicks, Jerral Robert. Error in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade II in the State of Colorado. Ed.D. Dissertation, University of Northern Colorado, 1970.

Holland, William R. "Language Barrier as an Educational Problem of Spanish-Speaking Children." Exceptional Children, 27 (September 1960): 42-48.

Huang, J. S. P. A Chinese Child's Acquisition of English Syntax. M. A. Thesis, University of California at Los Angeles, 1971.

Hughes, Maria. The English Language Facility of Mexican American Children Living and Attending School in a Segregated Community. Ph.D. Dissertation, Stanford University, 1952.

Hunt, Kellogg W. Grammatical Structures Written at Three Grade Levels. Champaign, Ill.: National Council of Teachers of English, 1965.

Jameson, Gloria Ruth. The Development of a Phonemic Analysis for an Oral English Proficiency Test for Spanish-Speaking School Beginners. Ph.D. Dissertation, University of Texas at Austin, 1967.

Koziol, Stephen H., Jr. An Analysis of the Development of Noun Plural Rules in the Primary Grades. Ph.D. Dissertation, Stanford University, 1970.

Labov, William. "A Sociolinguistic Study of the Puerto Rican Community: A Proposal." New York: Columbia University, 1969. (Mimeographed.)

Lambert, W. E. and Tucker, G. R. Bilingual Education of Children--The St. Lambert Experiment. Rowley, Mass.: Newbury House Publishers, Inc., 1972.

Lance, Donald N. "The Code of the Spanish-English Bilingual." TESOL, 4:4 (December 1970): 343-351.

Lastra, Yolanda. El Habla y la Educación de los Niños de Origen Mexicano en Los Ángeles. Paper presented at the V Simposio del Programa Interamericano de Linguistica y Ensenanza de Idiomas, Sao Paulo, Brazil, January 9-14, 1969.

Ma, Roxana, and Herasimchuk, Eleanor. "Linguistic Dimensions of a Bilingual Neighborhood." In Bilingualism in the Barrio, pp. 347-464. By Joshua A. Fishman. Washington, D.C.: U.S. Office of Education, 1968.

MacNamara, John. "Attitudes and Learning a Second Language." In Language Attitudes: Current Trends and Prospects, pp. 36-40. Edited by Roger W. Shuy and Ralph W. Fasold. Washington, D.C.: Georgetown University Press, 1973.

Manuel, Herschel T. The Spanish-Speaking Children of the Southwest. Austin, Texas: University of Texas Press, 1965.

Martinez-Bernal, Janet Ayers. Children's Acquisition of Spanish and English Morphological Systems and Noun Phrases. Ph.D. Dissertation, Georgetown University, 1972.

Menyuk, Paula. The Acquisition and Development of Language. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1971.

Milon, J. A Japanese Child Learns English. Paper presented at the TESOL Convention, Washington, D.C., March 1972.

Natalicio, Diana S., and Natalicio, Luiz F. S. "A Comparative Study of English Pluralization by Native and Non-Native English Speakers." Child Development, 42 (September-October 1971): 1302-1306.

O'Donnell, Roy C., Griffin, William J. and Norris, Raymond C. Syntax of Kindergarten and Elementary School Children: A Transformation Analysis. Champaign, Illinois, 1967.

Pauls, Leo Wayne. Errors in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade V in the State of Colorado. Ed.D. Dissertation, University of Northern Colorado, 1970.

Peña, Albar Antonio. A Comparative Study of Selected Syntactical Structures of the Oral Language Status in Spanish and English of Disadvantaged First-Grade Spanish-Speaking Children. Ph.D. Dissertation, University of Texas at Austin, 1967.

Politzer, Robert L. and Ramirez, Arnulfo G. "An Error Analysis of the Spoken English of Mexican-American Pupils in a Bilingual School and a Monolingual School." Language Learning, 23:1 (June 1973): 39-61.

Raven, Roar. "Language Acquisition in a Second Language Environment." International Review of Applied Linguistics, 6:2 (May 1968): 185-195.

_____. "The Development of Wh- Questions in First and Second Language Learners." In Occasional Papers. Colchester, England: University of Essex, Language Center, December 1970.

Richards, Jack. Social Aspects of Language Learning. Paper presented at the TESOL Convention, Washington, D.C. March, 1972.

Roberts, Neil Alden. Errors in Oral English Usage of Mexican-American Pupils with a Spanish Language Background in Grade IV in the State of Colorado. Ed.D. Dissertation, University of Northern Colorado, 1970.

Ross, Stephen B. "On the Syntax of Written Black English." TESOL, 5:2 (June 1971): 115-122.

Slobin, Don I. "Universal of Grammatical Development in Children." In Advances in Psycholinguistics, pp. 174-184. Edited by G. B. Flores d'Arcais and W. J. M. Levelt. New York: American Elsevier, 1970.

Stockwell, Robert P., Bowen, J. Donald, and Martin, John W. The Grammatical Structures of English and Spanish. Chicago: University of Chicago Press, 1965.

Strandberg, T. E. An Evaluation of Three Stimulus Media for Evoking Verbalization from Preschool Children. Eastern Illinois University, 1969.

Thornhill, D. E. A Quantitative Analysis of the Development of Syntactical Fluency of Four Young Adult Spanish Speakers Learning English. Ph.D. Dissertation, Florida State University, 1969.

Tierman, L. S. Spanish Vocabulary of Four Native Spanish-Speaking Pre-I Children. Albuquerque, N.M.: University of New Mexico Press, 1948.

Tucker, G. Richard, and d'Anglejan, Alison. "Language Learning Processes." In Britannica Review of Foreign Language Education, pp. 163-182. Edited by Dale L. Lange. Chicago: Encyclopaedia Britannica, Inc., 1971.

Van Metre, Patricia Downer. Syntactic Characteristics of Selected Bilingual Children. Ph.D. Dissertation, University of Arizona, 1972.

Weinreich, Uriel. Languages in Contact. The Hague: Monton and Company, N. V. Publishers, 1968.

APPENDIX A

DESCRIPTION OF THE CONTROL VARIABLES USED TO ESTABLISH THE COMPARABILITY OF THE TWO TREATMENT GROUPS

1. The Cooperative Primary Test of Mathematics (Coop. Math), developed by the Educational Testing Service (1967), measures knowledge of major mathematical concepts, independent of a particular curriculum program or method. The concepts tested are (1) number, (2) symbolism, (3) operation, (4) function and relation, (5) approximation and estimation, (6) proof, (7) measurement, and (8) geometry. This test has the same format as the Cooperative Primary Test of Reading and similar features such as the interspersing of "easy" and "difficult" items throughout the test. The test has two levels, one for administration at the end of grade 1 and one for administration at the end of grades 2 and 3.

2. The Test of English Oral Comprehension was an experimental test constructed of items from the Inter-American Oral Comprehension Test and from the Inter-American Tests of Reading (Levels 1-3). A total of 45 items were presented orally to the student. The student indicated by putting an "X" on one of the four pictures which he felt matched the stimulus item. The last three sets of items were based on each of three stories. The child heard the story and then responded to a series of comprehension questions.

3. Inter-American Tests of General Abilities, developed by Guidance Testing Associates, are issued in English and Spanish editions with parallel content. These tests yield Verbal-Numerical and Nonverbal scores at the preschool and primary levels (Levels 1 and 2), and Verbal, Numerical, and Nonverbal scores at higher levels (Levels 3, 4, and 5). Subtests of Oral Vocabulary and Number are combined to yield a Verbal-Numerical score, and Nonverbal score consists of Association and Classification subtests. For Level 1, the Nonverbal Association subtest contains 16 items and the Classification subtest contails 16 items also. For Level 2, the Nonverbal Association subtest consists of 16 items, and the Classification subtest consists of 24 items.

4. The Inter-American Tests of Reading, also developed by Guidance Testing Associates, yield Vocabulary and Comprehension scores at Level 1, Vocabulary, Speed of Comprehension, and Levels of Comprehension scores at Levels 2-5. In each of the subtests, the child responds by choosing a picture which is suggested by a word, a phrase, a sentence, or a paragraph. The items in the tests include both phonically regular and irregular words.

5. The Murphy-Durrell Reading Readiness Analysis (1965) is a readiness test for pre-readers and for children in the early stages of reading. It has subtests on phonemes, letter names, and learning rate. The Phonemes test provides an inventory of the child's ability in identifying sounds in spoken words. It consists of 24 items, in

each of which pupils are to mark two pictures which represent words which start with or end with a sound dictated by the teacher. The Letter Names test includes 52 items which measure the ability to identify capital and lower-case letters named by the teacher. The Learning Rate test measures the number of words a child can recognize one hour after a formal instructional presentation. The test contains 18 items.

APPENDIX B

SCHEDULE OF INSTRUCTIONS

(Each interview will be conducted immediately after the child has seen the film.)

1. After a brief conversation to put the child at ease, turn the recorder on.

2. Record the child's code number on the tape, so that his speech sample can be identified.

3. Ask the child to tell in his own words the story of the ant and the dove.

4. When he has finished telling the story, ask the child: "Does the story tell you that if you help someone they will help you?" If his answer is yes, say: "Who do you think so?" If his answer is no, say: "Why don't you think so?"

APPENDIX C

LINGUISTIC ANALYSIS WORKSHEET

1-3_____student number 4_____grade 5____male 6____bilingual school
_____female_____monolingual school

T-Unit _____
_____

7-8 ____T-unit number
9-10____words in T-unit
11____mazes "(the ant he the ant) the ant helped the dove."
12____false start "uh"
13____attention claimer "well"
14____redundant subject "the ant he. . ."

15-16____sentence patterns
____1 S-V "The ant fell."
____2 S-V-O "The ant found a ball."
____3 S-V-Adv "The ant went home."
____4 S-V-Adj "The dove was white."
____5 S-V-Cn "They were friends."
____6 S-V-IO "The dove threw him a leaf."
____7 S-V-O-Cn "I'd call it a cookie."
____8 S-V-O-Ca "That made him happy."
____9 Adv-V-S "There came a dragonfly."
____10 There-V-S "There was a bird in the tree."
____11 It-V-S "It is better to help."
____12 Question "What do you call it?"
____13 Passive "The cookie was broken by the ant."
____14 Incorrect, non-standard

17____TOTAL SENTENCE COMBINING TRANSFORMATIONS (SCT)

18____Total Nominal SCT

Nominal Structures--Headed

____1 N+Adjective "big leaf"
____2 N+Possessive "ant's cap/ his cap"
____3 N+Relative Clause "hunter who was wearing boots"
____4 N+Prepositional Phrase "dove in the tree"
____5 N+Infinitive Phrase "cookies to eat"
____6 N+Participal Phrase "ant rolling the cookie"
____7 N+Adverbial "hunter outside"
____8 Other

Nominal Structures--Non-headed

____1 Noun Clause "I know [that] the ant would save the dove."
____2 Prepositional Phrase "He fell on a leaf."
____3 Infinitive Phrase "He wanted to eat food."
____4 Infinitive with Subject "The wind made the ant fall."
____5 Gerund Phrase "The dove kept the ant from being drowned."
____6 Other

19____Total Adverbial SCT

Adverbial Clause

____1 Time "It was night when the ant went to sleep."
____2 Place "The ant found many cookies everywhere he looked."
____3 Manner "The ant ran as quickly as he could."
____4 Cause "The ant went home since it was getting dark."
____5 Condition "The ant would help the dove if the dove helped the ant."
____6 Comparison "The ant was better than the snail was."
____7 Reduced Comparison "The ant was better than the snail."
____8 Adjective Complement "The ant was happy when she got home."
____9 Other

Sentence Adverbial

_____1 Interjected Clause "It is better, I think, to be a good person."

_____2 Other

_____1 Adverbial Infinitive "The ant went out to get some food."

20_____Total Coordinating SCT

Modifiers

_____1 Adjectival

_____2 Adverbial

_____1 Nominals

Predicates

_____1 V "The dove sang and flew away."

_____2 V-O "The hunter came and found an apple tree."

_____3 V-Cn "They were cookies and candies."

_____4 V-Ca "It was white and green."

_____5 V-I-O "The dove brought a leaf and a string."

_____6 V-O-Cn "He got him some food and clothes."

_____7 V-O-Ca "That made him smile and laugh."

_____8 Other

APPENDIX D

SUBJECTIVE EVALUATION OF COMPETENCE

Accent

Foreign:____:____:____: :____:____:____:Native

Grammar

Accurate:____:____:____: :____:____:____:Inaccurate

Vocabulary

Inadequate:____:____:____: :____:____:____:Adequate

Fluency

Even:____:____:____: :____:____:____:Uneven

APPENDIX E

TRANSCRIPTION OF LANGUAGE SAMPLE

Number 27 Grade 1 Sex F

School Monolingual

I: You just saw a movie about an ant and a dove. Can you tell me what happens in the movie?

C: Yeah the the ant fell in the water and then the dove came and picked him up with a leaf he was trying to get a leaf and then he throw the leaf in the water and then the ant the ant got uh the leaf and then the bird the man trying to kill the dove and then the ant comes and get one of those a stick and then the man the ant stings the man and then the bird goes away and then the ant then the man falls down and then and then the ant and then the bird and then the dove goes flying

I: Do you think the movie shows that if you help someone they will help you also?

C: Yeah

I: Why do you say that?

C: Cause then if somebody helps the other one and then the other eh weak it hurt then the other comes and helps the other one.

END

APPENDIX E (Continued)

TRANSCRIPT OF LANGUAGE SAMPLE

Number 53 Grade 3 Sex M

School Bilingual

I: You just saw a movie about an ant and a dove. Can you tell me what happens in the movie?

C: The story was about a the ant and the dove The ant liked cookies and he put 'em in his house each time he found one and then he found one and it cracked and then he put it together and and he put them in the house and then he went out again and he fall in the pond and the bird and the bird saw him drowning and he he hurried and cut a leaf and let it drop where he was and then he got out of the water and he went back home and then this man he shot a lot of apples down from the trees and then he started walking by the ant's home and he had a rifle and he was gonna shoot the bird down so he he got I don't know what he got and he went up the man's leg and pinched 'im with that thing and then he was going back home and he offered the bird a cookie That's all I remember

I: Do you think that the story tells you that if you help someone someone will help you?

C: Cause when you help 'im you do 'im a favor.

I: So the bird helped the ant, right? And how did the ant help the bird?

C: By pinching the man so they won't kill the bird.

I: Did you like the movie?

C: Yes.

END

APPENDIX F

ANALYSIS OF VARIANCE OF THE DEPENDENT MEASURES ACCORDING TO TREATMENT (BILINGUAL vs MONOLINGUAL SCHOOLING) AND GRADE

Total Number of Words

Source	df	MS	F
Treatment (T)	1	28124.00	7.02*
Grade (G)	3	48473.85	12.10**
T x G	3	3188.67	.80
Subjects within (error)	64	4006.84	

Percentage of Words Used in T-Units

Treatment (T)	1	98.70	.28
Grade (G)	3	5061.68	14.29**
T x G	3	176.95	.50
Subjects within (error)	64	354.20	

Total Number of Structurally Complete T-Units

Source	df	MS	F
Treatment (T)	1	250.69	5.66*
Grade (G)	3	296.49	6.70**
Variables--correct and incorrect T-units (V)	1	336.11	11.54**
T x G	3	36.86	.83
T x V	1	58.78	2.02
G x V	3	187.65	6.45**
Subjects within T x G (error between)	64	44.22	
T x G x V	3	30.54	1.05
Subjects within T x G x V (error within)	64	29.11	

Total Number of T-Units

Treatment (T)	1	675.57	13.66**
Grade (G)	3	13.91	.28
Variables--structurally complete T-units, implicit T-units, and clause-type T-units (V)	2	5055.50	112.08**
T x G	3	25.96	.52
T x V	2	173.39	3.84*
G x V	6	487.00	10.80**
Subjects within T x G (error between)	64	49.43	
T x G x V	6	98.57	2.19
Subjects within T x G x V (error within)	128	45.11	

Number of Words Per T-Unit

Source	df	MS	F
Treatment (T)	1	9.10	3.25
Grade (G)	3	38.80	13.85**
T x G	3	8.04	2.87*
Subjects within (error)	64	2.80	

Total Number of SCT

Treatment (T)	1	528.13	3.27
Grade (G)	3	2504.49	15.53**
T x G	3	591.83	3.67*
Subjects within (error)	64	161.30	

Number of SCT per T-Unit

Treatment (T)	1	.21	1.04
Grade (G)	3	2.64	12.81**
T x G	3	1.01	4.88**
Subjects within (error)	64	.21	

Types of SCT

Source	df	MS	F
Treatment (T)	1	176.04	3.27
Grade (G)	3	834.83	15.52**
Variables--nominal, adverbial, coordinating SCT (V)	2	6265.28	158.47**
T x G	3	197.27	3.66*
T x V	2	133.17	3.37*
G x V	6	424.90	10.75**
Subjects within T x G (error between)	64	53.77	
T x G x V	6	158.29	4.00**
Subjects within T x G x V (error within)	128	39.54	

Percentage of Type I Sentence Patterns

Treatment (T)	1	.018	1.00
Grade (G)	3	.046	2.61
Variables--S-V and S-V-O sentence patterns (V)	1	.001	.02
T x G	3	.003	.15
T x V	1	.005	.08
G x V	3	.213	3.14*
Subjects within T x G (error between)	64	.018	
T x G x V	3	.036	.53
Subjects within T x G x V (error within)	64	.068	

Percentage of Type II Sentence Patterns

Source	df	MS	F
Treatment (T)	1	.000	.04
Grade (G)	3	.018	3.58*
Variables--S-V-Adv, S-V-Adj, and S-V-Cn sentence patterns (V)	2	.191	36.82**
T x G	3	.006	1.28
T x V	2	.004	.75
Subjects within T x G (error between)	64	.005	
T x G x V	6	.003	.51
Subjects within T x G x V (error within)	128	.005	

Percentage of Type III Sentence Patterns

Treatment (T)	1	.004	3.31
Grade (G)	3	.003	1.92
Variables--There-V-S, It-V-S, Question sentence patterns (V)	2	.001	.61
T x G	3	.001	.46
T x V	2	.001	.67
G x V	6	.001	.58
Subjects within T x G (error between)	64	.001	
T x G x V	6	.001	.71
Subjects within T x G x V (error within)	128	.002	

*$p < .05$

**$p < .01$